

⊗ = APPROXIMATE LOCATION OF SEEP

DMMEYER 4/29/91

PRELIMINARY INFORMATION

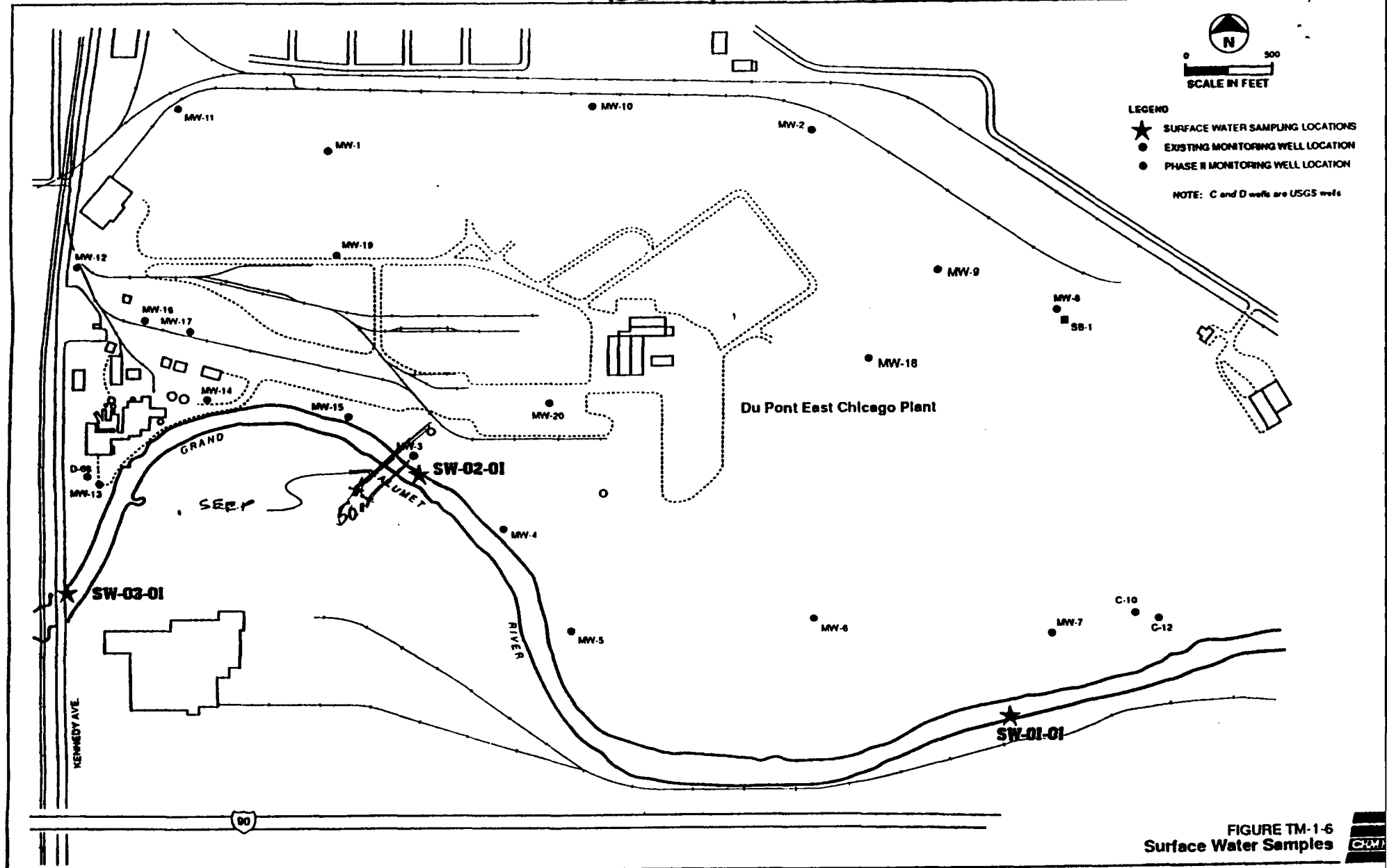


FIGURE TM-1-6
Surface Water Samples

DRAFT

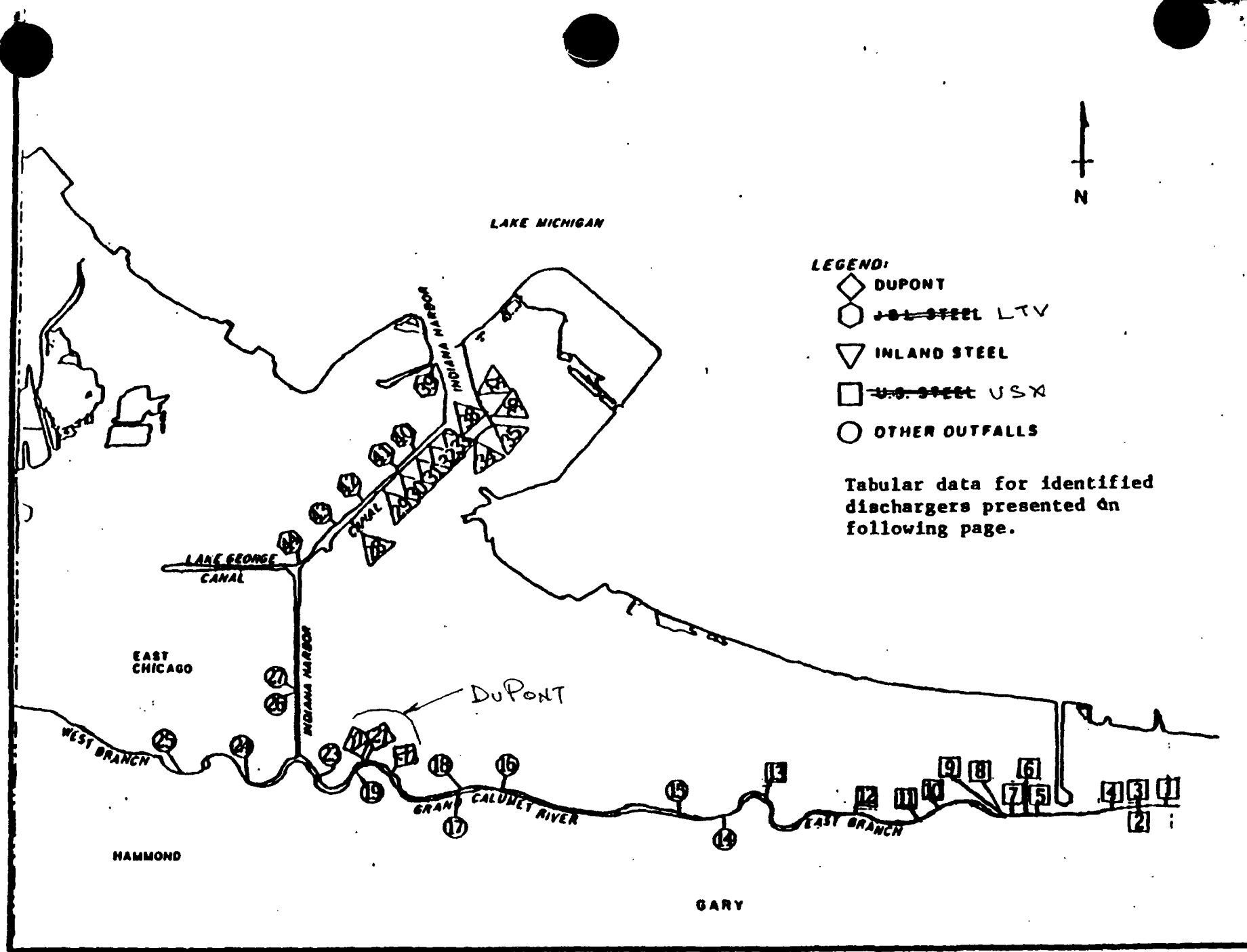


Figure 2-5
Location of Point Source Discharges

Modified from ISBH 1984



DU PONT CHEMICALS
East Chicago, Indiana 46312

cc: Norman Bell, B-12258, Wilm.
Hilton Frey, BOD918-14, Wilm.
Diane Heck, L33E45, Eng., Wilm.
Dave Epps, Bellevue Pkwy., Wilm.
Norm Griffiths, D7007, Wilm.
File

September 27, 1991

Dale S. Bryson, Director
Water Division
United States Environmental Protection Agency
Region V (5WCC-TUB-8)
230 South Dearborn Street
Chicago, Illinois 60604

Subject: Section 308 (Clean Water Act)
Information Request

Attached is the August Monthly Monitoring Report for the
groundwater seeps covered in your Section 308 Information Request
(Docket No. V-W-91-308-11).

If you have any questions I may be reached at (219) 391-4601.

Sincerely,

E. F. Hartstein
Plant Manager

EFH/pjp

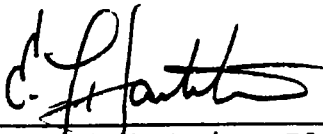
Encl.

cc: Assistant Commissioner for Water Management
IDEM
105 South Meridian Street
P. O. Box 6015
Indianapolis, Indiana 46206-6015

Certification of Du Pont Responses (3/14/91) - 308 Request for Information

I, E. F. Hartstein, Environmental Coordinator of Du Pont's East Chicago, Indiana, based on information and data provided to me by others under my control and supervision, including outside laboratory (analysis) work which I believe to be reliable, hereby certify that Du Pont's written responses and data provided hereunder is true and accurate to the best of my knowledge and belief. I agree that should subsequent information come to my attention that indicates that any portion of such information or data is false or incorrect, I will so notify the Water Division of Region V, U.S. Environmental Protection Agency.


Date:


E. F. Hartstein, Plant Manager
Du Pont East Chicago Plant

STATE OF INDIANA)

LAKE COUNTY)

Before me, Peggy J. Price, this 27th day of September, 1991, personally appeared on behalf of E. I. du Pont de Nemours and Company, O. J. Meyer, Environmental Coordinator, Du Pont East Chicago Plant and acknowledged the execution of the foregoing instrument.


Notary Public

My commission expires: 3/17/93

CH²M HILL TRANSMITTAL

TO EI DU PONT DE NEMOURS FROM

LEGAL DEPARTMENT

DUPONT BUILDING

ROOM 7007

WILMINGTON DE 19898

ATTN NORMAN GRIFFITHS DATE

RE EAST CHICAGO SEEPS PROJECT

NUMBER

FROM SUSAN MULHOLLAND
1033 UNIVERSITY PL
STE 300
EVANSTON IL 60201
708/866-9490
9/25/91
DATE
PROJECT CHI 26770 B0.MR
NUMBER

WE ARE SENDING YOU

☒ ATTACHED

☐ UNDER SEPARATE COVER VIA _____

☐ SHOP DRAWINGS

☐ DOCUMENTS

☐ TRACINGS

☐ PRINTS

☐ SPECIFICATIONS

☐ CATALOGS

☐ COPY OF LETTER

☐ _____

QUANTITY	DESCRIPTION
1	AUGUST MONTHLY MONITORING REPORT
	POT WITH OUR COPY OF the letter

IF MATERIAL RECEIVED IS NOT AS LISTED, PLEASE NOTIFY US AT ONCE

REMARKS _____

COPY TO HILTON FREY, GENE HARTSTEIN, OT MEYER,
NORMAN BELL, DIANE HECK, DAVID EAPS

**August Monthly Monitoring Report
for the Groundwater Seeps at the
Du Pont East Chicago Plant
East Chicago, Indiana**

Prepared by CH2M HILL
on behalf of
E.I. du Pont de Nemours & Company

September 24, 1991

Introduction

In response to U.S. EPA's Section 308 Information Request dated February 13, 1991, and U.S. EPA's amended Information Request dated June 27, 1991, Du Pont is submitting this monthly monitoring report characterizing the quality of the groundwater seep referenced in the original request (Groundwater Seep 1) and two other groundwater seeps referenced in the amended request (Groundwater Seeps 2 and 3) at Du Pont's East Chicago Plant. This report contains the results of the "monthly monitoring program" for August 1991.

Sample Collection and Analysis

The August "monthly monitoring program" sampling activities consisted of monitoring groundwater seep conditions and obtaining a grab sample from each seep, if possible, once per week. Monitoring was performed on August 1, 8, 15, 22, and 29, 1991. Seep flow rates were measured and recorded during each sampling event (Table 1). Samples were collected from Groundwater Seep 1 on August 1, 15, 22, and 29. Samples from Groundwater Seep 2 were not collected because the seep was not present (it was either dry or submerged*) at monitoring times. Samples from Groundwater Seep 3 were collected on

***Note:**

When a groundwater seep becomes submerged beneath the surface of a water body, it (by definition) is no longer a seep and technically is no different than the rest of the groundwater discharge to that surface water body. There is no simple way to measure and distinguish this discharge from the rest of the groundwater discharge to the Grand Calumet River.

August 1, 15, and 29. Groundwater Seep 3 was not present on August 22. On August 8, all three groundwater seeps were submerged beneath the Grand Calumet River surface.

Sample fractions collected for oil and grease, total suspended solids, and pH analyses were not filtered. All other sample fractions were filtered.

After the samples were collected, filtered, and preserved, as appropriate, the samples were shipped via overnight courier to National Environmental Testing, Inc. (NET) analytical laboratory in Bartlett, Illinois. The samples collected from Groundwater Seep 1 were analyzed for the following constituents: chemical oxygen demand (COD), ammonia-N, nitrate, nitrite, sulfate, chloride, fluoride, total dissolved solids, total suspended solids, arsenic, zinc, and pH. The samples collected from Groundwater Seep 3 were analyzed for all of the constituents listed above, plus biological oxygen demand (BOD-five day), oil and grease, and copper, as originally requested. In the amended request, BOD-five day, oil and grease, and copper were dropped from the Groundwater Seep 1 monitoring requirements.

For quality assurance/quality control (QA/QC) purposes, a field blank and duplicate samples from Groundwater Seep 1 were collected on August 1.

Analytical Results and Interpretation

Tables 2 (Groundwater Seep 1) and 3 (Groundwater Seep 3) summarize the analytical results of the "monthly monitoring program" for the month of August. The analytical results for the duplicate samples collected on August 1 are shown separated by a slash in the first data column of Table 2. All laboratory data sheets for samples collected and analyzed during August for the "monthly monitoring program" are provided in Attachment 1. Attachment 2 contains a data validation summary of QA/QC information associated with the analysis of the August groundwater seep samples.

Except for COD, Groundwater Seep 1 constituents remained at relatively consistent levels during August. COD levels ranged from less than 3 to 46 mg/l. Groundwater Seep 3 constituent levels were relatively consistent for at least two of the three August Groundwater Seep 3 data sets. Generalizations regarding trends in water quality can be formulated when more data are available for this groundwater seep.

Comparing the August Groundwater Seep 1 data to that collected in preceding months for Groundwater Seep 1, several observations were made. The average COD level for August was consistent with the range of COD level averages during April, May, June, and July (Table 4). Nitrate, arsenic, and zinc levels appear to be lower in August than in the preceding months.

TABLE 1

GROUNDWATER SEEP FLOW RATES (GPM)
AUGUST MONTHLY MONITORING PROGRAM
AUGUST 1991

Date	Groundwater Seep 1	Groundwater Seep 2	Groundwater Seep 3
August 1	0.28	NP*	0.10
August 8	NP**	NP**	NP**
August 15	0.37	NP*	0.61
August 22	0.38	NP*	NP**
August 29	0.36	NP*	0.47

Notes:

NP* denotes not present. No flow. Groundwater seep location dry.

NP** denotes not present. Groundwater seep location submerged below river surface.

When a groundwater seep becomes submerged beneath the surface of a water body, it (by definition) is no longer a seep and technically is no different than the rest of the groundwater discharge to that surface water body. There is no simple way to measure and distinguish this discharge from the rest of the groundwater discharge to the Grand Calumet River.

TABLE 2

CONSTITUENTS DETECTED IN GROUNDWATER SEEP 1
AUGUST MONTHLY MONITORING PROGRAM
AUGUST 1991

Sample ID:	DEC-SP1-8-1	DEC-SP1-8-3	DEC-SP1-8-4	DEC-SP1-8-5	
Lab:	NET	NET	NET	NET	
Lab ID:	146136/ 146137	146983	147511	147899	
Date:	8/1/91	8/15/91	8/22/91	8/29/91	
Filtered (Yes/No):	Yes	Yes	Yes	Yes	Average
AVERAGE FLOW RATE (gpm)	0.28	0.37	0.38	0.36	0.35
WATER QUALITY PARAMETERS (mg/l)					
COD	33/16	46J		13	21
Chloride	26/28	10B	26	30	23
Fluoride	0.9J/0.9J	0.8J	1.1	0.6J	0.9
Nitrogen, Ammonia	0.67/0.86	0.41	0.51	0.43	0.53
Nitrogen, Nitrate	0.10B/0.08B	0.07B	0.07B	0.09B	0.08
Nitrogen, Nitrite	/		0.6		0.15
Total Dissolved Solids	1310/1370	1490	1420	1360	1400
Total Suspended Solids	27*/18*	13*	62*	13*	28*
Sulfate	800/900	900	800	800	840
pH (lab)	6.8*/6.8*	7.1*	7.0*	7.0*	7.0*
TRACE INORGANIC COMPOUNDS (mg/l)					
Arsenic	0.022/0.022	0.0240			0.017
Zinc	0.551/0.606	0.225	0.359	0.349	0.378

Notes:

* Sample fraction not filtered.

No value denotes not detected.

J denotes estimated value.

B denotes blank contamination.

A value of one-half the detection limit used in averaging not detected values.

The average value of the duplicate sample results used in overall averaging.

TABLE 3

CONSTITUENTS DETECTED IN GROUNDWATER SEEP 3
AUGUST MONTHLY MONITORING PROGRAM
AUGUST 1991

Sample ID:	DEC-SP3-8-1	DEC-SP3-8-3	DEC-SP3-8-5	
Lab:	NET	NET	NET	
Lab ID:	146139	146985	147900	
Date:	8/1/91	8/15/91	8/29/91	
Filtered (Yes/No):	Yes	Yes	Yes	Average
AVERAGE FLOW RATE (gpm)	0.10	0.61	0.47	0.39
WATER QUALITY PARAMETERS (mg/l)				
BOD-Five Day	3	4	6	4
COD	10	20J	13	14
Chloride	24	26B	34	28
Fluoride	1.9J	1.0J	0.6J	1.2
Nitrogen, Ammonia	2.7	4.0	3.61	3.4
Nitrogen, Nitrate	0.72B	0.31B	0.26B	0.43
Nitrogen, Nitrite				
Oil and Grease	*	2*	*	1*
Total Dissolved Solids	2930	3530	2880	3110
Total Suspended Solids	63*	69*	429*	190*
Sulfate	2100	2600	900	1900
pH (lab)	6.1*	6.1*	6.2*	6.1*
TRACE INORGANIC COMPOUNDS (mg/l)				
Arsenic		0.0100		0.005
Copper	0.124		0.037	0.055
Zinc	2.974	35.8	27.1	22.0

Notes:

* Sample fraction not filtered.

No value denotes not detected.

J denotes estimated value.

B denotes blank contamination.

A value of one-half the detection limit used in averaging not detected values.

The average value of the duplicate sample results used in overall averaging.

TABLE 4
AVERAGE CONCENTRATIONS IN GROUNDWATER SEEP 1
MONTHLY MONITORING PROGRAM
1991

	April	May	June	July	August
AVERAGE FLOW RATE (gpm)	0.78	0.86	0.87	0.62	0.35
WATER QUALITY PARAMETERS (mg/l)					
COD	14	15	23	19	21
Chloride	32	32	25	25	23
Fluoride	1.0	1.2	1.0	1.1	0.9
Nitrogen, Ammonia	0.34	0.58	0.91	0.53	0.53
Nitrogen, Nitrate	0.47	1.3	0.94	0.35	0.08
Nitrogen, Nitrite			0.01		0.15
Total Dissolved Solids	1260	1400	1110	1340	1400
Total Suspended Solids	6*	6*	27*	145*	28*
Sulfate	760	840	740	830	840
pH (lab)	7.2*	7.1*	7.0*	7.0*	7.0*
TRACE INORGANIC COMPOUNDS (mg/l)					
Arsenic	0.046	0.054	0.068	0.103	0.017
Zinc	0.78	0.544	0.635	0.578	0.378

Notes:

* Sample fraction not filtered.

No value denotes not detected.

A value of one-half the detection limit used in averaging not detected values.

The average value of the duplicate sample results used in overall averaging.

Attachment 1
Laboratory Data Sheets
Monthly Monitoring Program



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Ave
Suite 200
Evanston, IL 60201

08/20/1991

Sample No.: 146136

Job No.: 91.2711

Sample Description: DEC-SP1-8-1
CH128770.B0.MS; DuPont

Date Taken: 08/01/1991
Time Taken: 08:46
IEPA Cert. No. 100221

Date Received: 08/02/1991
Time Received: 10:30
WDNR Cert. No. 999447130

Chloride	26.	mg/L
COD, Total	33.	mg/L
Fluoride	0.9	mg/L
N-Ammonia	0.67	mg/L
N-Nitrate	0.10	mg/L
N-Nitrite	<0.01	mg/L
pH	6.8	units
Solids, Total Dissolved	1310.	mg/L
Solids, Total Suspended	27.	mg/L
Sulfate	800.	mg/L
Arsenic, AA	0.022	mg/L
Zinc, ICP	0.551	mg/L

Neal E. Cleghorn
Project Manager



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

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Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Ave
Suite 200
Evanston, IL 60201

08/20/1991

Sample No.: 146137

Job No.: 91.2711

Sample Description: DEC-FRSP1-8-1
CH128770.B0.MS; DuPont

Date Taken: 08/01/1991
Time Taken: 08:46
IEPA Cert. No. 100221

Date Received: 08/02/1991
Time Received: 10:30
WDNR Cert. No. 999447130

Chloride	28.	mg/L
COD, Total	16.	mg/L
Fluoride	0.9	mg/L
N-Ammonia	0.86	mg/L
N-Nitrate	0.08	mg/L
N-Nitrite	<0.01	mg/L
pH	6.8	units
Solids, Total Dissolved	1370.	mg/L
Solids, Total Suspended	18.	mg/L
Sulfate	900.	mg/L
Arsenic, AA	0.022	mg/L
Zinc, ICP	0.606	mg/L

Neal E. Cleghorn
Project Manager



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TESTING, INC.

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Bartlett Division
856 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Av.
Suite 200
Evanston, IL 60201

09/05/1991

Sample No.: 146983

Job No.: 91.2953

Sample Description: DEC-SP1-8-3
CHI28770.B0.MS; DuPont

Date Taken: 08/15/1991
Time Taken: 13:14
IEPA Cert. No.: 100221

Date Received: 08/16/1991
Time Received: 10:00
WDNR Cert. No.: 999447130

Chloride	10.	mg/L
COD, Total	46.	mg/L
Fluoride	0.8	mg/L
N-Ammonia	0.41	mg/L
N-Nitrate	0.07	mg/L
N-Nitrite	<0.01	mg/L
pH	7.1	units
Solids, Total Dissolved	1490.	mg/L
Solids, Total Suspended	13.	mg/L
Sulfate	900.	mg/L
Arsenic, AA	0.0240	mg/L
Zinc, ICP	0.225	mg/L

Kelly Jones
Kelly Jones
Project Manager



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
650 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Avenue
Suite 200
Evanston, IL 60201

09/09/1991

Sample No.: 147511

Job No.: 91.3099

Sample Description: DEC-SP1-8-4
CHI28770.BC.MS; DuPont

Date Taken: 08/22/1991
Time Taken: 11:30
IEPA Cert. No.: 100221

Date Received: 08/23/1991
Time Received: 10:00
WDNR Cert. No.: 999447130

Chloride	26.	mg/L
COD, Total	<3.	mg/L
Fluoride	1.1	mg/L
N-Ammonia	0.51	mg/L
N-Nitrate	0.07	mg/L
N-Nitrite	0.6	mg/L
pH	7.0	units
Solids, Total Dissolved	1420.	mg/L
Solids, Total Suspended	62.	mg/L
Sulfate	800.	mg/L
Arsenic, AA	<0.005	mg/L
Zinc, AA	0.359	mg/L

Kelly Jones
Project Manager



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ENVIRONMENTAL
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Bartlett Division
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Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1033 University Place
Suite 300
Evanston, IL 60201-3137

09/09/1991

Sample No.: 147899

Job No.: 91.3229

Sample Description: Seep 1;DEC-SPI-8-5
DuPont East Chicago Seep 1

Date Taken: 08/29/1991
Time Taken: 08:15
IEPA Cert. No. 100221

Date Received: 08/30/1991
Time Received: 10:00
WDNR Cert. No. 999447130

Chloride	30.	mg/L
COD, Total	13.	mg/L
Fluoride	0.6	mg/L
N-Ammonia	0.43	mg/L
N-Nitrate	0.09	mg/L
N-Nitrite	<0.01	mg/L
pH	7.0	units
Solids, Total Dissolved	1360.	mg/L
Solids, Total Suspended	13.	mg/L
Sulfate	800.	mg/L
Arsenic, AA	<0.04	mg/L
Zinc, ICP	0.349	mg/L

Kelly Jones

Kelly Jones
Project Manager



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TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Ave
Suite 200
Evanston, IL 60201

08/20/1991

Sample No.: 146139

Job No.: 91.2712

Sample Description: DEC-SP3-8-1
CH128770.B0.3S; DuPont

Date Taken: 08/01/1991
Time Taken: 10:24
IEPA Cert. No. 100221

Date Received: 08/02/1991
Time Received: 10:30
WDNR Cert. No. 999447130

BOD, Five Day	3.	mg/L
Chloride	24.	mg/L
COD, Total	10.	mg/L
Fluoride	1.9	mg/L
N-Ammonia	2.7	mg/L
N-Nitrate	0.72	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	<1.	mg/L
pH	6.1	units
Solids, Total Dissolved	2930.	mg/L
Solids, Total Suspended	63.	mg/L
Sulfate	2100.	mg/L
Arsenic, AA	<0.005	mg/L
Copper, ICP	0.124	mg/L
Zinc, ICP	2.974	mg/L

Neal E. Cleghorn
Project Manager



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TESTING, INC.

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Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Av.
Suite 200
Evanston, IL 60201

09/04/1991

Sample No.: 146985

Job No.: 91.2954

Sample Description: DEC-SP3-8-3
CHI28770.B0.3R

Date Taken: 08/15/1991
Time Taken: 15:25
IEPA Cert. No.: 100221

Date Received: 08/16/1991
Time Received: 10:00
WDNR Cert. No.: 999447130

BOD, Five Day	4.	mg/L
Chloride	26.	mg/L
COD, Total	20.	mg/L
Fluoride	1.0	mg/L
N-Ammonia	4.0	mg/L
N-Nitrate	0.31	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	2.	mg/L
pH	6.1	units
Solids, Total Dissolved	3530.	mg/L
Solids, Total Suspended	69.	mg/L
Sulfate	2600.	mg/L
Arsenic, AA	0.0100	mg/L
Copper, ICP	<0.010	mg/L

Kelly Jones

Kelly Jones
Project Manager



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Av.
Suite 200
Evanston, IL 60201

09/04/1991

Sample No.: 146985

Job No.: 91.2954

Sample Description: DEC-SP3-8-3
CHI28770.B0.3R

Date Taken: 08/15/1991
Time Taken: 15:25
IEPA Cert. No.: 100221

Date Received: 08/16/1991
Time Received: 10:00
WDNR Cert. No.: 999447130

Zinc, ICP

35.8

mg/L

Kelly Jones

Kelly Jones
Project Manager



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NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1033 University Place
Evanston, IL 60201

09/09/1991

Sample No.: 147900

Job No.: 91.3230

Sample Description: Seep 3; DEC-SP3-8-5
DuPont East Chicago Seep 1

Date Taken: 08/29/1991
Time Taken: 09:16
IEPA Cert. No. 100221

Date Received: 08/30/1991
Time Received: 10:00
WDNR Cert. No. 999447130

BOD, Five Day	6.	mg/L
Chloride	34.	mg/L
COD, Total	13.	mg/L
Fluoride	0.6	mg/L
N-Ammonia	3.61	mg/L
N-Nitrate	0.26	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	<1.	mg/L
pH	6.2	units
Solids, Total Dissolved	2880.	mg/L
Solids, Total Suspended	429.	mg/L
Sulfate	900.	mg/L
Arsenic, AA	<0.004	mg/L
Copper, ICP	0.037	mg/L
Zinc, ICP	27.1	mg/L

Kelly Jones

Kelly Jones
Project Manager

Attachment 2
Data Validation Summary
Monthly Monitoring Program

MEMORANDUM

CH2HILL

TO: Pixie Newman/CHI
Susan Mulholland/CHI

FROM: Dan MacGregor/GLO

DATE: September 16, 1991

SUBJECT: Data Validation for Groundwater Seep Samples
Du Pont East Chicago, Indiana

PROJECT: CHI28770.B0.MR

Introduction

This memorandum presents the data validation discussion for the inorganic analytical results for groundwater seep samples collected on August 1, 15, 22, and 29, 1991, at the Du Pont Plant in East Chicago, Indiana. Sampling was performed in compliance with the U.S. EPA-requested "monthly monitoring program."

Samples were analyzed for major ions and selected metals by NET Laboratories in Bartlett, Illinois. Sample collection and transport were performed under strict chain-of-custody procedures. Requested QA/QC data included holding time data, chain-of-custody forms, calibration and method blank results, initial calibration verification and standard recoveries, continuing calibration recovery results, sample duplicate results, matrix spike and matrix spike duplicate results, and laboratory spike results. The QA/QC and sample data were reviewed as described below.

Holding Times

Inspection of holding times showed that the holding time requirements as specified by the EPA *Methods for Chemical Analysis of Water and Wastes* were met.

Chain of Custody

The chain-of-custody forms were reviewed for accuracy and completeness. All necessary information was provided and found to be accurate. All requested analyses were performed, and the data packages were complete.

Blanks

The field blank sampled and analyzed with the August 1 samples contained concentrations of chloride (4 mg/L), ammonia (0.05 mg/L), and nitrate (0.04 mg/L). As a result, the following results were qualified as possibly blank contaminated and flagged with a "B":

MEMORANDUM

Page 2

September 16, 1991

CHI28770.B0.MR

- The nitrate results from August 1
- The chloride and nitrate results from August 15
- The nitrate result from August 22
- The nitrate results from August 29

The calibration and procedure blank results were inspected for possible contaminants. The calibration blanks were free of compound concentrations equal to or greater than compound reporting limits. Zinc was found in the August 1 method blank, and ammonia was found in the August 15 method blank. The concentrations of these method blank contaminants were at least a factor of five lower than their corresponding sample concentrations. Subsequently, data qualification was not necessary.

Initial Calibration Verification Standard Recoveries

With one exception, the initial calibration verification standard recoveries were all within control limits, ± 10 percent of true value. The fluoride recovery associated with the August 29 data was outside control limits. As a result, the fluoride results from that date were qualified as estimated and flagged with a "J."

Continuing Calibration Recoveries

Continuing calibration recoveries were found to be within control limits for all compounds except fluoride and COD. Fluoride results from the August 1 and 15 samplings and COD from the August 15 sampling were outside the ± 10 percent control limit. The fluoride and COD results for their respective dates were qualified as estimated "J."

Laboratory Control Spikes

The laboratory spike recoveries were within the control limit of ± 20 percent of true value. No qualifying action was required.

Matrix Spike / Matrix Spike Duplicate Fortifications

The matrix spike and matrix spike duplicate results, with one exception, were within control limits. The relative percent difference for oil and grease was outside control limits for the August 29 sample. Oil and grease were not detected in the sample, and thus data qualification was not required.

MEMORANDUM

Page 3

September 16, 1991

CHI28770.B0.MR

Duplicates

Duplicate samples (DEC-SP1-8-1 and DEC-FRSP1-8-1) were taken during the August 1 sampling event. Three compounds had relative percent differences greater than the 25 percent control limit. Upon reviewing previous months' results with results from this round of sampling, it was determined that this round of analytical results were consistent with previous results and thus no qualifiers were added.

Results

Generally sample results were found to be complete and accurate. With the exception of the qualified samples, the Groundwater Seep 3 results appear to be valid and usable. The Groundwater Seep 1 arsenic result from August 29 had a detection limit of 0.04 mg/L. This detection limit is a factor of 10 greater than the expected detection limit. This increase in the detection limit resulted from NET being required to subcontract out its arsenic analyses, in this instance to a laboratory with a higher arsenic detection limit. Unfortunately, when arsenic appears it is at a concentration between 0.004 mg/L and 0.04 mg/L, rendering the arsenic data unusable. With the exception of qualified data and the aforementioned arsenic result, the data results from Groundwater Seep 1 appear to be valid and usable.

CHI185/034.51



LEGAL
Wilmington, Delaware 19898

September 23, 1991

Certified Mail
Return Receipt Requested

Dale S. Bryson, Director
Water Division, U. S. EPA Region V
5WCC-TUB
230 South Dearborn Street
Chicago, Ill. 60604

Re: Du Pont Response To June 27, 1991 Ltr. DSB to NDG
Second §308 Information Request - East Chicago Plant

Dear Mr. Bryson:

In my letter to you of July 12, 1991, which provided your office with Du Pont's June, 1991 Monthly Monitoring Report pursuant to the §308 Information Request (Docket No. V-W-91-308-11) served upon Du Pont's East Chicago, Indiana facility in February, 1991, I indicated that Du Pont would be responding to the items listed in the above-referenced letter under separate cover. We will attempt to do that below. However, after addressing each of the four points raised in the June 27th letter, we would like you to consider the points that follow regarding the advisability of continuing the sampling program.

For ease of reading, each of the four points in your letter is in bold print and precedes Du Pont's response/comment.

1. **Two additional seeps have been found since the initial request, and Du Pont has initiated a sampling program similar to the "one-time" and "monthly" monitoring programs requested on the first seeps. We ask that you provide us with this data and continue the monthly monitoring for a period not to exceed one year.**

Rsp. A clarification of your use of the plural "seeps" is in order. It is our understanding that the February 13, 1991 Information Request was directed at a single seep, hereinafter referred to as "Seep 1", not multiple "seeps". We would also request that these areas be more accurately referred to in future communications as "groundwater

seeps" as we will do herein. For convenience we will refer to the groundwater seeps by the letters "GS" prior to the seep number.

One-time monitoring similar to that performed at GS 1 was performed at GS 2 on April 4, 1991 (and April 25, 1991 due to limited bottle breakage in transport of April 4th samples) and at GS 3 on April 25, 1991 (and May 23, 1991 due to laboratory error in handling a portion of the April 25, 1991 samples). A report summarizing the results of this sampling and analysis is currently being prepared by CH2M Hill and will be submitted under separate cover in the near future.

Du Pont authorized CH2M Hill to perform monthly sampling at GS 2 and 3 in June, 1991. That monthly sampling differed from the Monthly Monitoring Program ("MMP") described in the Information Request dated February 13, 1991, in that one sample was to be collected per month instead of the four samples per month as set forth in the MMP for GS 1.

CH2M Hill's sampling team attempted to perform this monthly sampling during the last week of June and before receipt of the subsequent §308 Information Request contained in your June 27, 1991 letter.

We directed CH2M Hill to implement the MMP for GS 2 and 3 consistent with the June 27, 1991 Information Request upon receipt of this correspondence. CH2M Hill started implementing this program during the second week of July, 1991. The sampling team typically visits the site on Thursdays to perform weekly sampling.

Variations in hydraulic conditions at the riverbank complicate implementation of a program that calls for weekly sampling. The characteristics of the groundwater seeps (the surface expression of the water table) vary, as do the characteristics of the groundwater beneath the land surface. As groundwater levels rise and fall in response to recharge (from precipitation), seep flow rates can increase and decrease. During periods of little rainfall, seeps can dry up completely making it impossible to sample. This occurred in June at GS 2 and also occurred at GS 1 and at GS 3 at other times.

Variations in Grand Calumet River levels affect local groundwater seep conditions. The seeps are submerged (as is the rest of the groundwater discharge area) when river levels rise in response to increases in rainfall-runoff and outfall discharge. During these conditions seep samples and flow data cannot be collected.

The following flow data (measured between March and August, 1991) illustrate the variability of the hydraulic conditions at the seeps:

<u>Flow Rates (gpm)</u>			
<u>Date</u>	<u>GS 1</u>	<u>GS 2</u>	<u>GS 3</u>
3/ 6/91	0.33	-	-
3/15/91	0.41	-	-
3/21/91	0.01	-	-
3/28/91	0.10	-	-
4/ 4/91	0.32	13.81	-
4/11/91	0.13	14.91	-
4/18/91	1.57	29.93	0.80
4/25/91	1.12	15.42	0.98
5/ 2/91	0.48	12.33	0.01
5/ 9/91	0.97	14.60	0.12
5/16/91	0.78	4.85	Dry
5/23/91	0.87	8.83	0.03
5/30/91	1.2	9.12	0.15
6/ 6/91	1.25	1.82	0.96
6/13/91	1.15	1.57	0.85
6/20/91	0.88	Dry*	Submerged*
6/27/91	0.18	Dry	0.96
7/ 2/91	0.93	Submerged	Submerged
7/11/91	0.72	Dry	Submerged
7/18/91	0.48	Dry	Submerged
7/25/91	0.35	Dry	Submerged

*During these conditions, groundwater seeps do not exist and are not present for purposes of sampling.

During late June when the sampling team attempted to start monitoring GS 2 and 3 for the parameters specified by you for monthly monitoring, GS 2 was dry. Therefore only GS 3 was sampled.

In an effort to be responsive to your Information Request, the team tried to collect samples on July 2, 11, 18 and 25, 1991. July MMP samples could not be collected at either GS 2 or 3. Samples were collected at GS 1. The MMP data for GS 3 collected in late June will be included in the July Monthly Monitoring Report.

Note that combined seep flows this summer have been typically less than 2-3 gpm. This constitutes less than 1/70,000 of the "dry weather" flow in the Grand Calumet River (based on U.S.G.S. 1987 data).

Du Pont initiated a MMP at GS 2 and 3 in good faith, prior to receipt of your June 27th letter, without committing to continuing this program for a "...period not to exceed one year.". We would like to meet with you to discuss the technical need for continuing this monitoring.

2. Du Pont suggested that single grab samples can be substituted for composite samples, as supported by Table 2, "Comparison of Composite Sample Analytical Results to Grab Sample Analytical Results". We concur, and 3A2 shall be revised to require "weekly grab samples comprising..., collected at regular intervals"...

Rsp. Upon reviewing the above language and that in the February 13, 1991 Information Request, it is Du Pont's understanding that we can substitute "weekly single grab samples" for "weekly 8-hour, flow proportioned composite samples, comprising no fewer than three (3) grabs, collected at regular intervals.". If this interpretation is in error, please clarify.

We assume that this approach is acceptable for GS 2 and 3 as well as GS 1.

3. Du Pont suggested elimination of analyses for several parameters, we agree that analyses for some of these parameters can be eliminated for only the first seeps at this time. They are:

BOD - Five Day
Oil and Grease
Copper

After review of subsequent reports, additional parameters can be dropped. Further, upon review of data on the other seeps, similar screening can be done.

Rsp. It is our understanding that three of the five parameters we asked in mid-June, 1991 to drop from the MMP can be dropped. We appreciate your openness to eliminating constituents that you deem are no longer relevant for characterizing groundwater seep quality. Nevertheless, we do not understand the need to continue monitoring for many of the constituents contained in the Request. Most of these analyses more reasonably and typically apply to traditional wastewater discharges rather than groundwater discharges. The rationale for continuing to monitor nitrite is especially unclear given the fact that nitrite has been detected at a concentration greater than the method detection limit of 0.01 mg/l on only one occasion.

We would appreciate your help in explaining the rationale for the sampling and analysis program as it presently exists and the level and nature of information required by your office in order to decide that these analyses are not necessary.

4. For clarification purposes, please assign an identification name to each seep (like seep 1, seep 2 and seep 3) and locate on the sketch previously provided. This can accompany your next submittal.

Rsp. Attached is a map illustrating the locations of GS 1, 2, and 3. These locations have not been illustrated on the map originally provided because we believe the new map better illustrates site conditions. If this substitution is not acceptable, please let us know.

As you know, Du Pont is in the second year of a site study to determine groundwater conditions at its East Chicago Facility. The results of that work will also assist us in characterizing the groundwater discharge to the Grand Calumet River. It is our intent to incorporate groundwater seeps along the riverbank into the overall groundwater investigation and cleanup effort at the Facility.

Groundwater seeps represent a small fraction of the estimated groundwater discharge to the Grand Calumet River and an even smaller fraction of the flow in the Grand Calumet River under "dry weather" streamflow conditions. Thus, these seeps have very little impact on the overall water quality of the Grand Calumet River.

I'm sure you appreciate the difficulties of approaching a project on a piece-meal basis, including the problems of budgeting, scheduling and drawing conclusions toward a plan of action from the various segments of work. Du Pont has committed approximately \$235,000 on seep characterization/analytical work to comply with the §308 Orders. Weekly sampling and monthly reporting costs, assuming all three seeps can be sampled, cost approximately \$26,000 per month. Projected over the next six months, that amounts to \$160,000. This money would be better spent on developing an environmental approach for the entire site, including the groundwater seeps rather than addressing them separately.

As you probably know, we were served on Friday (9/20/91) with an information request under §104(e) of the Comprehensive Environmental Response Compensation and Liability Act ("CERCLA"). If it is Region V's intention to address this site under CERCLA, we would appreciate the opportunity to meet with you and representatives of the Waste Management Division to discuss this matter in the hope that the Agency can proceed in a unified fashion to address the overall environmental issues at the facility.

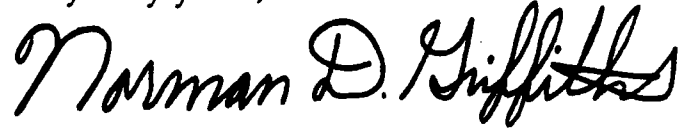
Dale S. Bryson

- 6 -

September 23, 1991

We look forward to hearing from you regarding the matters contained herein and hope that a meeting can be scheduled to discuss this matter further.

Very truly yours,



Norman D. Griffiths
Counsel
Environmental Law Group

cc: Jodi Lynn Traub, Associate Director (w/encl.)
Waste Management Division
USEPA - Region V - 5 HWM TUB - 7

E. F. Hartstein, Plant Manager, (w/encl.)
Du Pont East Chicago Plant

Attachment
Est.Chicago./14.



Locations of Groundwater Seeps
Du Pont East Chicago Plant





DU PONT CHEMICALS
East Chicago, Indiana 46312

bcc: Hilton Frey, BOD 918-14, Wilm.
Norman Griffiths, D-7007, Wilm.
Norman Bell, B-12258, Wilm.
David Epps, Bellevue Corp., Wilm.
Diane Heck, L33E45, Wilm.
Pixie Newman, CH2MHill
E.F. Hartstein, E. Chgo.

September 5, 1991

Dale S. Bryson, Director
Water Division
United States Environmental Protection Agency
Region V (5WCC-TUB-8)
230 South Dearborn Street
Chicago, Illinois 60604

Subject: Section 308 (Clean Water Act)
Information Request

Attached is the July Monthly Monitoring Report for the ground-water seeps covered in your Section 308 Information Request (Docket No. V-W-91-308-11).

If you have any questions I may be reached at (219) 391-4601.

Sincerely,

O. J. Meyer
Environmental Coordinator

OJM/pjp

Encl.

cc: Assistant Commissioner for Water Management
IDEM
105 South Meridian Street
P. O. Box 6015
Indianapolis, Indiana 46206-6015

Certification of Du Pont Responses (3/14/91) - 308 Request for Information

I, O. J. Meyer, Environmental Coordinator of Du Pont's East Chicago, Indiana, based on information and data provided to me by others under my control and supervision, including outside laboratory (analysis) work which I believe to be reliable, hereby certify that Du Pont's written responses and data provided hereunder is true and accurate to the best of my knowledge and belief. I agree that should subsequent information come to my attention that indicates that any portion of such information or data is false or incorrect, I will so notify the Water Division of Region V, U.S. Environmental Protection Agency.

Date: 9/5/91

O.J. MEYER

O.J. Meyer, Environmental Coordinator
Du Pont East Chicago Plant

STATE OF INDIANA)

LAKE COUNTY)

Before me, Peggy J. Price, this 5th day of September, 1991, personally appeared on behalf of E. I. du Pont de Nemours and Company, O. J. Meyer, Environmental Coordinator, Du Pont East Chicago Plant and acknowledged the execution of the foregoing instrument.

Peggy J. Price
Notary Public

My commission expires: 3/17/93

**July Monthly Monitoring Report
for the Groundwater Seeps at the
Du Pont East Chicago Plant
East Chicago, Indiana**

Prepared by CH2M HILL
on behalf of
E.I. du Pont de Nemours & Company

August 23, 1991

INTRODUCTION

In response to U.S. EPA's Section 308 Information Request dated February 13, 1991 and U.S. EPA's amended Information Request dated June 27, 1991, Du Pont is submitting this monthly monitoring report characterizing the quality of the groundwater seep (Groundwater Seep 1) referenced in the original request and the other two groundwater seeps (Groundwater Seeps 2 and 3) referenced in the amended request at Du Pont's East Chicago Plant. This report contains the results of the "monthly monitoring program" for July 1991.

SAMPLE COLLECTION AND ANALYSIS

The July "monthly monitoring program" sampling activities consisted of monitoring groundwater seep conditions and obtaining a grab sample from each seep, if possible, once per week. Monitoring was performed on July 2, 11, 18, and 25, 1991. Seep flow rates were measured and recorded during each sampling event (Table 1). Samples were collected from Groundwater Seep 1 on July 2, 11, 18, and 25. Samples from Groundwater Seeps 2 and 3 were not collected because the seeps were either dry or submerged* at the time. Sample fractions collected for total suspended solids and pH analyses were not filtered. All other sample fractions were filtered.

***Note:**

When a groundwater seep becomes submerged beneath the surface of a water body, it (by definition) is no longer a seep and technically is no different than the rest of the groundwater discharge to that surface water body. There is no simple way to measure and distinguish this discharge from the rest of the groundwater discharge to the Grand Calumet River.

After the samples were collected, filtered, and preserved, as appropriate, the samples were shipped via overnight courier to National Environmental Testing, Inc. (NET) analytical laboratory in Bartlett, Illinois. The samples collected from Groundwater Seep 1 were analyzed for the following constituents: COD, ammonia-N, nitrate, nitrite, sulfate, chloride, fluoride, total dissolved solids, total suspended solids, arsenic, zinc, and pH. The samples collected from Groundwater Seeps 2 and 3 were to be analyzed for all of the constituents listed above, plus BOD-five day, oil and grease, and copper, as originally requested. In the amended request, BOD-five day, oil and grease, and copper were dropped from the Groundwater Seep 1 monitoring.

For quality assurance/quality control (QA/QC) purposes, a duplicate sample was collected from Groundwater Seep 1 on July 2.

ANALYTICAL RESULTS AND INTERPRETATION

Table 2 summarizes the analytical results of the "monthly monitoring program" for the month of July. The analytical results for the duplicate samples collected on July 2 are shown separated by a slash in the first data column of Table 2. All laboratory data sheets for samples collected and analyzed during July for the "monthly monitoring program" are provided in Attachment 1. Attachment 2 contains a data validation summary of QA/QC information associated with the analysis of the July seep samples.

Groundwater Seep 1 constituents remained at relatively consistent levels during July with the following exceptions: COD and total suspended solids. COD levels ranged from less than 3 to 39 mg/l and total suspended solids levels ranged from 23 to 236 mg/l.

Comparing the July data to that collected in preceding months, several observations were made. The average COD level for July was consistent with the range of COD level averages during April, May, and June (Table 3). The July average for total suspended solids was higher than the averages for the preceding months. Arsenic levels appear to be higher in July than in the preceding months.

TABLE 1

GROUNDWATER SEEP FLOW RATES (GPM)

Date	Groundwater Seep 1	Groundwater Seep 2	Groundwater Seep 3
July 2	0.93	NP**	NP**
July 11	0.72	NP*	NP**
July 18	0.48	NP*	NP**
July 25	0.35	NP*	NP**

Notes:

NP* denotes not present. No flow. Groundwater seep location dry.

NP** denotes not present. Groundwater seep location submerged below river surface.

When a groundwater seep becomes submerged beneath the surface of a water body, it (by definition) is no longer a seep and technically is no different than the rest of the groundwater discharge to that surface water body. There is no simple way to measure and distinguish this discharge from the rest of the groundwater discharge to the Grand Calumet River.

TABLE 3
AVERAGE CONCENTRATIONS
GROUNDWATER SEEP 1
MONTHLY MONITORING PROGRAM

	April	May	June	July
AVERAGE FLOW RATE (gpm)	0.78	0.86	0.87	0.62
WATER QUALITY PARAMETERS (mg/l)				
COD	14	15	23	19
Chloride	32	32	25	25
Fluoride	1.0	1.2	1.0	1.1
Nitrogen, Ammonia	0.34	0.58	0.91	0.53
Nitrogen, Nitrate	0.47	1.3	0.94	0.35
Nitrogen, Nitrite			0.01	
Total Dissolved Solids	1260	1400	1110	1340
Total Suspended Solids	6*	6*	27*	145*
Sulfate	760	840	740	830
pH (lab)	7.2*	7.1*	7.0*	7.0*
TRACE INORGANIC COMPOUNDS (mg/l)				
Arsenic	0.046	0.054	0.068	0.103
Zinc	0.78	0.544	0.635	0.578

Notes:

* Sample fraction not filtered.

No value denotes not detected.

A value of one-half the detection limit used in averaging not detected values.

The average value of the duplicate sample results used in overall averaging.

TABLE 2

CONSTITUENTS DETECTED IN GROUNDWATER SEEP 1
JULY MONTHLY MONITORING PROGRAM
JULY 1991

Sample ID:	DEC-SP1-7-1	DEC-SP1-7-2	DEC-SP1-7-3	DEC-SP1-7-4	
Lab:	NET	NET	NET	NET	
Lab ID:	144148/ 144149	144650	145143	145559	
Date:	7/2/91	7/11/91	7/18/91	7/25/91	
Filtered (Yes/No):	Yes	Yes	Yes	Yes	Average
AVERAGE FLOW RATE (gpm)	0.93	0.72	0.48	0.35	0.62
WATER QUALITY PARAMETERS (mg/l)					
COO	29/29	39	7		19
Chloride	28/24	20	26	28	25
Fluoride	1.3/1.0	0.8J	0.9J	1.5J	1.1
Nitrogen, Ammonia	0.768/0.778		0.588	0.75	0.53
Nitrogen, Nitrate	0.28/0.13	**	0.53	0.32	0.35
Nitrogen, Nitrite	/	**			
Total Dissolved Solids	1310/1220	1320	1550	1240	1340
Total Suspended Solids	23*/38*	135*	236*J	178*	145*
Sulfate	800/800	900	800	810	830
pH (lab)	6.8*/6.8*	7.0*	7.0*	7.0*	7.0*
TRACE INORGANIC COMPOUNDS (mg/l)					
Arsenic	0.1800/0.1690	0.1320	0.104	UJ	0.103
Zinc	1.038/0.932	0.553	0.2608	0.513B	0.578

Notes:

* Sample fraction not filtered.

**Sample analyzed, in error, for Nitrate + Nitrite (0.11 mg/l) instead of Nitrate and Nitrite.

No value denotes not detected.

NA denotes not analyzed.

J denotes estimated value.

B denotes blank contamination.

UJ denotes not detected and possibly biased low.

A value of one-half the detection limit used in averaging not detected values.

The average value of the duplicate sample results used in overall averaging.

Attachment 1
Laboratory Data Sheets
Monthly Monitoring Program



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Ave.
Suite 200
Evanston, IL 60201

07/22/1991

Sample No.: 144148

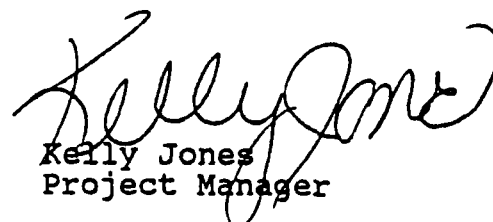
Job No.: 91.2119

Sample Description: DEC-SP1-7-1
CH128770.B0.MS; DuPont

Date Taken: 07/02/1991
Time Taken: 08:08

Date Received: 07/03/1991
Time Received: 09:45

Chloride	28.	mg/L
COD, Total	29.	mg/L
Fluoride	1.3	mg/L
N-Ammonia	0.76	mg/L
N-Nitrate	0.28	mg/L
N-Nitrite	<0.01	mg/L
pH	6.8	units
Solids, Total Dissolved	1310.	mg/L
Solids, Total Suspended	23.	mg/L
Sulfate	800.	mg/L
Arsenic, AA	0.1800	mg/L
Zinc, ICP	1.038	mg/L


Kelly Jones
Project Manager



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Ave.
Suite 200
Evanston, IL 60201

07/22/1991

Sample No.: 144149

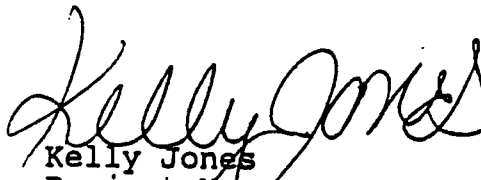
Job No.: 91.2119

Sample Description: DEC-FRSP1-7-1
CH128770.B0.MS; DuPont

Date Taken: 07/02/1991
Time Taken: 08:08

Date Received: 07/03/1991
Time Received: 09:45

Chloride	24.	mg/L
COD, Total	29.	mg/L
Fluoride	1.0	mg/L
N-Ammonia	0.77	mg/L
N-Nitrate	0.13	mg/L
N-Nitrite	<0.01	mg/L
pH	6.8	units
Solids, Total Dissolved	1220.	mg/L
Solids, Total Suspended	38.	mg/L
Sulfate	800.	mg/L
Arsenic, AA	0.1690	mg/L
Zinc, ICP	0.932	mg/L


Kelly Jones
Project Manager



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Sue Mulholland
CH2M HILL
1890 Maple Avenue
Suite 200
Evanston, IL 60201

07/25/1991

Sample No.: 144650


Job No.: 91.2279

Sample Description: DEC-SP1-7-2
CHI28770.B0.MS;Dupont-East

Date Taken: 07/11/1991
Time Taken: 12:28

Date Received: 07/12/1991
Time Received: 10:00

Chloride	20.	mg/L
COD, Total	39.	mg/L
Fluoride	0.8	mg/L
N-Ammonia	<0.01	mg/L
Nitrate + Nitrite	0.11	mg/L
pH	7.0	units
Solids, Total Dissolved	1320.	mg/L
Solids, Total Suspended	135.	mg/L
Sulfate	900.	mg/L
Arsenic, AA	0.1320	mg/L
Zinc, ICP	0.553	mg/L


Kelly Jones
Project Manager



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Avenue
Suite 200
Evanston, IL 60201

08/07/1991

Sample No.: 145143

Job No.: 91.2424

Sample Description: DEC-SP1-7-3
CHI 28770.B0.MS; DuPont

Date Taken: 07/18/1991
Time Taken: 12:02

Date Received: 07/19/1991
Time Received: 09:00

Chloride	26.	mg/L
COD, Total	7.	mg/L
Fluoride	0.9	mg/L
N-Ammonia	0.58	mg/L
N-Nitrate	0.53	mg/L
N-Nitrite	<0.01	mg/L
pH	7.0	units
Solids, Total Dissolved	1550.	mg/L
Solids, Total Suspended	236.	mg/L
Sulfate	800.	mg/L
Arsenic, AA	0.104	mg/L
Zinc, ICP	0.260	mg/L

Kelly Jones

Kelly Jones
Project Manager



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Avenue
Suite 200
Evanston, IL 60201

08/09/1991

Sample No.: 145559

Job No.: 91.2565

Sample Description: DEC-SP1-7-4
CHI28770.B0.MS; DuPont

Date Taken: 07/25/1991
Time Taken: 09:30

Date Received: 07/26/1991
Time Received: 10:30

Chloride	28.	mg/L
COD, Total	<3.	mg/L
Fluoride	1.0	mg/L
N-Ammonia	0.75	mg/L
N-Nitrate	0.32	mg/L
N-Nitrite	<0.01	mg/L
pH	7.0	units
Solids, Total Dissolved	1240.	mg/L
Solids, Total Suspended	178.	mg/L
Sulfate	810.	mg/L
Arsenic, AA	<0.005	mg/L
Zinc, ICP	0.513	mg/L

for *Parla Kalicki*
Kelly Jones
Project Manager

Attachment 2
Data Validation Summary
Monthly Monitoring Program

MEMORANDUM

CH2M HILL

TO: Pixie Newman/CHI
Susan Mulholland/CHI

FROM: Dan MacGregor/GLO

DATE: August 26, 1991

SUBJECT: Data Validation for Groundwater Seep Samples
Du Pont East Chicago, Indiana

PROJECT: CHI28770.B0.MR

INTRODUCTION

This memorandum presents the data validation discussion for the inorganic analytical results for groundwater seep samples collected on July 2, 11, 18, and 25, 1991, at the Du Pont Plant in East Chicago, Indiana. Sampling was performed in compliance with the U.S. EPA-requested "monthly monitoring program."

Samples were analyzed for major ions and selected metals by NET Laboratories in Barlett, Illinois. Sample collection and transport were performed under strict chain-of-custody procedures. Requested QA/QC data were limited to holding time data, chain-of-custody forms, calibration and procedure blank results, initial calibration verification and standard recoveries, continuing calibration recovery results, sample duplicate results, matrix spike and matrix spike duplicate results, and laboratory spike results. The QA/QC and sample data were reviewed as described below.

HOLDING TIMES

Inspection of holding times for the inorganic analyses showed that all holding times were met.

CHAIN OF CUSTODY

The chain of custody forms were reviewed for accuracy and completeness. All necessary information was provided and found to be accurate. All requested analyses were performed, and the data packages were complete.

MEMORANDUM

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August 26, 1991

CHI28770.B0.MR

BLANKS

The calibration and procedure blank results were inspected for possible contaminants. Zinc was found in the July 18 and 25 procedure blanks. Zinc results from these dates were qualified as possibly blank contaminated "B." Ammonia was found in the July 2, 11, and 18 procedure blanks. Ammonia results from the July 2 and 18 sampling dates were qualified as possibly blank contaminated. No ammonia was detected in the July 11 seep sample, thus no qualifying action was required with this sample. Any other compounds that may have been present were at concentrations equal to or less than their reporting limits.

INITIAL CALIBRATION VERIFICATION STANDARD RECOVERIES

The initial calibration verification standard recoveries were all within control limits. Initial calibration results for total suspended solids (TSS) were not provided for the July 11 sample results. No qualifying action was taken.

CONTINUING CALIBRATION RECOVERIES

Continuing calibration recoveries were found to be within control limits for all compounds, except fluoride. Fluoride results from the July 11, 18 and 25 samplings dates were outside control limits. The fluoride results from these dates were qualified as estimated "J."

LABORATORY CONTROL SPIKES

All laboratory spike recoveries were within control limits. No qualifying action was required.

MEMORANDUM

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MATRIX SPIKE/MATRIX SPIKE DUPLICATE FORTIFICATIONS

Generally the matrix spike and matrix spike duplicate results were within control limits. The relative percent difference (RPD) for fluoride and TSS were outside control limits for the July 18 sampling date, and the zinc and arsenic recoveries from the July 25 sampling date were below control limits. Due to the zinc and fluoride results for these dates being previously qualified no further qualifying action was taken. Arsenic was not detected in the July 25 sampling and as a result the less than value was qualified as not detected and possibly biased low "UJ." The TSS result from the July 18 sampling was qualified as estimated "J."

RESULTS

Duplicate samples (DEC-SP1-7-1 and DEC-FRSP1-7-1) were collected during the July 2 sampling event. These sample results compared well. The results from July's sampling were compared, and found to be generally consistent, with data from previous sampling events. One exception is the arsenic results from the July 2 and 11 sampling events. Arsenic has been routinely found in Seep 1 samples, but the values associated with these sampling dates are two to three times the average of the previously analyzed samples. After reviewing the data and discussions with NET laboratory personnel, the values appear to be valid.

The lab performance for this month of sampling was poor, 30% of all results from the July 18 and 25 sampling dates required qualification.

With the exception of previously noted qualifiers, all results were found to be complete and accurate.

CHI120/044.51

SPOKE WITH JIM NOUAK @ USEPA VIA PHONE ~ 3PM 8/5/9
51500

TOLD JIM, DUPONT WANTS TO REDUCE SEEP SAMPLING. COST
@ 250-750 M\$ / YR FOR 3 SEEPS. HE WILL RECONSIDER FREQUENCY
& GET BACK TO ME. RECOGNIZES THIS DOES NOT IMPROVE ENVIRONMENT

ASKED ABOUT EPA'S THOUGHTS CONCERNING RECHARGE. TOLD
HIM WE DIDN'T WANT TO DRY UP NEARBY WETLANDS. HE
AGREED WE SHOULD TRY TO MAINTAIN WETLANDS \therefore HE WILL
LOOK INTO RECHARGE. (i.e. EPA HAS OBJECTIONS & WHY)

TOLD HIM WE HAD NOT BEEN DOING WEEKLY SAMPLES OF
SEEPS 2 & 3 BUT HAD DONE PRIORITY POLLUTANTS.

HE TOLD ME THAT MALEK IS STILL INVOLVED. IMPLIED THAT
SUPERFUND / RCRA IS LOOKING AT SITE & WILL USE
PHASE II GROUNDWATER REPORT WILL PROVIDE BASIS
FOR THEM TO PROCEED.

HE SAID THE REQUEST TO CHECK FLOW DAILY IS AIMED
AT SETTING EPA BASIS FOR STATUTORY PENALTY. THEY
WILL / MAY USE BENEFIT ~~PENALTY~~ CALCULATION X DAYS PRESENT.
EPA WILL ACCEPT WEEKLY CHECK IF WE ACCEPT THAT
THE CONDITION OF THE SEEP APPLIES UNTIL THE NEXT
OBSERVATION.

ASKED WHAT OUR POSITION IS ON RIVER CLEANUP.
CLEARLY EPA BELIEVES THEY CAN GET US INTO A
RIVER CLEANUP VIA STATUTORY PENALTIES RE. THE SEEPS.

HE ASKED WHY WE THOUGHT ARSENIC IN THE
GROUNDWATER WAS A PROBLEM. HE ASKED IF WE
UNDERTOOK GROUNDWATER CLEANUP DID THAT MEAN
WE WOULD DO NO GROUNDS CLEANUP. I ANSWERED
THAT GROUNDWATER CLEANUP WAS THE FIRST STEP ~~AND~~
IF FEASIBLE ~~AND~~ OTHER STEPS WOULD BE TAKEN AS &
IF APPROPRIATE.

E. J. Hutton

8/6/91

Received
7/31/91
EFH

7/31/91

E F HARTSTEIN,
PLANT MANAGER

E I DuPont

5215 KENNEDY AVE.

EA. CHI., IN 46312

GENE,

THIS FAX CONFIRMS THE CONVERSATION I HAD WITH JOHN ORBAN OF YOUR STAFF TODAY REGARDING OUR 308 INFORMATION REQUEST (DOCKET # V-W-91-308-11):

- (1) THE MONTHLY MONITORING REPORT SUBMISSION ON THE 1ST OF THE FOLLOWING MONTH IS FINE.
- (2) KEEP WEEKLY SAMPLING AT THE FIRST SEEP FOR NOW, AND CONTINUE TO REPORT ACTUAL CONCENTRATIONS INSTEAD OF ^{IN} STATISTICAL CHARTS.
- (3) SINCE SOME OF THE SEEPS ARE INTERMITTENT, IDENTIFY THE NUMBER OF DAYS FLOWS WERE OBSERVED. (NEW REQ'T: REPORT # OF DAYS/MONTH THAT SEEPS HAVE FLOW. E.G. FOR MONTH OF AUGUST SEEP #1 HAD FLOW 6 DAYS.)

THIS FAX WILL BE FOLLOWED UP WITH A LETTER.

for Nora

cc: FILIPPINI



LEGAL
Wilmington, Delaware 19898

July 12, 1991

Certified Mail
Return Receipt Requested

Dale S. Bryson, Director
Water Division, U.S. EPA Region V
5WCC-TUB-8
230 South Dearborn Street
Chicago, Ill. 60604

Re: Section 308 Clean Water Act Information Request
Docket #V-W-91-308-11
June, 1991 Monthly Monitoring Report
Du Pont East Chicago, Indiana Plant

Dear Mr. Bryson:

This is to confirm receipt of your letter of June 27, 1991 responding to concerns raised by Du Pont and agreeing to amend the above-referenced §308 Information Request as stated in that letter. We appreciate your favorable consideration of the points and will institute the new procedures in the future. We have some additional points to raise with you concerning this sampling program and will convey same to you under separate cover.

Enclosed with this letter is Du Pont's June, 1991 Monthly Monitoring Report for the (first) groundwater seep referenced in the original Information Request dated February 13, 1991.

Du Pont respectfully requests that the monthly monitoring report submission deadline be moved from the 15th of each month to the 1st of the following month. The laboratory we are utilizing for this program is having difficulty supplying both analytical results and quality control information within the 15-day period between the last week of sampling and the reporting deadline. Under the existing deadline, limited time is available for performing the data validation process and report preparation. Unless there is some reason for maintaining this schedule that we are overlooking, we request that the schedule be lengthened as set forth above.

Du Pont would also like to bring an additional concern to your attention. As of July 11, 1991, sampling has been performed on a weekly basis at the groundwater seep referenced in the February 13, 1991 §308 Request for a total of eighteen weeks. As evidenced by the monthly average results summarized in Table 2 of the attached report, only minor variations have been observed in constituent concentrations over the majority of this monitoring period. Sufficient data exists to establish baseline statistics for parameters being monitored and this information can be used to improve the efficiency of the monitoring and evaluation process.

The collection of additional weekly data will do little to better characterize seep quality. Instead, we propose that the frequency be switched from weekly to monthly and that changes in monthly water quality be monitored graphically through the use of charts showing baseline statistics for each constituent being monitored. The use of statistical charts for monitoring changes in groundwater quality over time and linking these to monitoring frequency is a widely accepted technique.

Using this monitoring and evaluation technique, observed concentrations are plotted on charts that allow for quick comparison to baseline constituent statistics. Each chart shows the mean, the mean \pm two standard deviations, and the mean \pm three standard deviations for a particular constituent. Attention is paid to observations exceeding these values and temporal trends. If observed constituent concentrations exceed the limits marked by the mean \pm three standard deviations, consideration is given to modifying sampling, monitoring, and evaluation process.

Du Pont would like to have a uniform reporting of sampling results on the 1st of the month and switch from weekly to monthly sampling at the first seep referenced in the February 13, 1991 §308 Request beginning in August, 1991. Your prompt response to these two requests would be deeply appreciated.

I apologize for not identifying the seeps by number as noted in your June 27th letter. It arrived after the June, 1991 report had been prepared, but future submittals will reference the seeps as you suggest.

By way of clarification, future submittals will normally be sent to you under the Plant Manager's signature/certification. However, when travel or other conflicts have the potential to interfere with meeting submittal deadlines, I will substitute for Mr. Hartstein, as in the case of this submittal. I hope there is no problem with this arrangement.

- 3 -

Pursuant to your instructions, Du Pont's certification of the June, 1991 report is attached hereto. If I can be of further help, please do not hesitate to call.

Very truly yours,



Norman D. Griffiths
Counsel
Environmental Law Group

cc: Assistant Commissioner for Water Management
IDEM
105 South Meridian Street, P. O. Box 6015
Indianapolis, Indiana 46206-6015

E. F. Hartstein, East Chicago Plant Manager
Attachments
Est.Chicago./13.

CERTIFICATION OF DU PONT RESPONSES - JUNE, 1991 REPORT
§308 Clean Water Act Information Request
Du Pont East Chicago Plant

I, Norman D. Griffiths, Attorney in the Legal Department of E. I. du Pont de Nemours and Company ("Du Pont"), certify under penalty of law that the subject Report, submitted pursuant to an Information Request under §308 of the Clean Water Act, was prepared in accordance with a system designed to assure that qualified personnel (including an outside laboratory) properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information and should any subsequent information come to my attention that indicates that any portion of such information or data is false or incorrect, I will so notify the Water Division of the U. S. Environmental Protection Agency, Region V.

Date: 7/15/91


Norman D. Griffiths
Counsel
Environmental Law Group

STATE OF DELAWARE]

NEW CASTLE COUNTY]

Before me, Carol P. Hoffstein, this 15th day of July, 1991, personally appeared on behalf of E. I. du Pont de Nemours and Company, Norman D. Griffiths, Attorney, Du Pont Legal, and acknowledged the execution of the foregoing instrument.


Notary Public

My commission expires: 2/17/93

Est.Chcgo./13a.

**June Monthly Monitoring Report
for the Groundwater Seep at the
Du Pont East Chicago Plant
East Chicago, Indiana**

Prepared by CH2M HILL
on behalf of
E.I. Du Pont de Nemours & Company

July 10, 1991

INTRODUCTION

In response to U.S. EPA's Section 308 Information Request dated February 13, 1991, Du Pont is submitting this monthly monitoring report characterizing the quality of the groundwater seep referenced in that request at Du Pont's East Chicago Plant. This report contains the results of the "monthly monitoring program" for June 1991.

SAMPLE COLLECTION AND ANALYSIS

Samples of the groundwater seep were collected on June 6, 13, 20, and 27, 1991. The flow rate of the seep averaged 1.25 gallons per minute (gpm) on June 6; 1.15 gpm on June 13; 0.88 gpm on June 20; and 0.18 gpm on June 27.

The June "monthly monitoring program" sampling activities consisted of obtaining a grab sample of seep water once per week. Seep flow rates were measured and recorded at each sampling interval. Sample fractions collected for oil and grease, total suspended solids, and pH analyses were not filtered. All other sample fractions were filtered.

After the samples were collected, filtered, and preserved, as appropriate, the samples were shipped via overnight courier to National Environmental Testing, Inc. (NET) analytical laboratory in Bartlett, Illinois. The samples collected on June 6 were analyzed for the following constituents specified in U.S. EPA's request: BOD-five day, COD, ammonia-N,

nitrate, nitrite, sulfate, chloride, fluoride, oil and grease, total dissolved solids, total suspended solids, arsenic, copper, zinc, and pH. The samples collected later in the month were analyzed for all of the constituents listed above, except BOD-five day, oil and grease, and copper. Du Pont received verbal approval from U.S. EPA to eliminate these three constituents from the monthly monitoring program prior to the collection of the seep sample during the second week of June.

For quality assurance/quality control (QA/QC) purposes, a duplicate sample was collected on June 6.

ANALYTICAL RESULTS AND INTERPRETATION

Table 1 summarizes the analytical results of the "monthly monitoring program" for the seep during the month of June. The analytical results for the duplicate samples collected on June 6 are shown separated by a slash in the first data column of Table 1. All laboratory data sheets for the seep samples collected and analyzed during June for the "monthly monitoring program" are provided in Attachment 1. Attachment 2 contains a data validation summary of QA/QC information associated with the analysis of the June seep samples.

Seep constituents remained at relatively consistent levels during June with the following exceptions: ammonia-N, nitrate, and total suspended solids. Ammonia-N levels ranged from 0.46 to 2.56 mg/l; nitrate levels ranged from 0.08 to 3.46 mg/l; and total suspended solids

levels ranged from 7 to 71 mg/l.

Average parameter values for the three sets of complete monthly monitoring data (April, May, and June) are shown in Table 2.

TABLE 1

CONSTITUENTS DETECTED IN SEEP WATER
JUNE MONTHLY MONITORING PROGRAM
JUNE 1991

Sample ID:	DEC-SP1-G-1	DEC-SP1-6-2T	DEC-SP1-6-3	DEC-SP1-6-3	
Lab:	NET	NET	NET	NET	
Lab ID:	142472/ 142473	143057	143439	143833	
Date:	6/6/91	6/13/91	6/20/91	6/27/91	
Filtered (Yes/No):	Yes	Yes	Yes	Yes	Average
AVERAGE FLOW RATE (gpm)	1.25	1.15	0.88	0.18	0.87
WATER QUALITY PARAMETERS (mg/l)					
BOD-Five Day	1/ /13	NA	NA	NA	NC
COD	26/26	29	26	29	23
Chloride	1*/1*	20	28	24	25
Oil and Grease	0.8J/0.8J	NA	NA	NA	NC
Fluoride	0.6	0.6	1.1	1.5	1.0
Nitrogen, Ammonia	0.56/2.56	0.46	0.60	1.03	0.91
Nitrogen, Nitrate	1.43J/3.46J	0.94	0.31	0.08	0.94
Nitrogen, Nitrite	/	0.04			0.01
Total Dissolved Solids	1360/1400	380	1410	1260	1110
Total Suspended Solids	11*/7*	8*	19*	71*	27*
Sulfate	870/840	490J	780J	850	740
pH (lab)	7.0*/7.1*	7.0*	6.9*	7.0*	7.0*
TRACE INORGANIC COMPOUNDS (mg/l)					
Arsenic	0.073/0.071	0.0340	0.0990	0.0650	0.068
Copper	/	NA	NA	NA	NC
Zinc	0.981/0.977	0.4548	0.6348	0.4738	0.635

Notes:

* Sample fraction not filtered.

No value denotes not detected.

NA denotes not analyzed.

NC denotes not calculated (constituent eliminated from monthly monitoring program).

J denotes estimated value.

B denotes blank contamination.

A value of one-half the detection limit used in averaging not detected values.

The average value of the duplicate sample results used in overall averaging.

TABLE 2

AVERAGE CONCENTRATIONS IN SEEP WATER
MONTHLY MONITORING PROGRAM

	April	May	June
AVERAGE FLOW RATE (gpm)	0.78	0.86	0.87
WATER QUALITY PARAMETERS (mg/l)			
BOD-Five Day	2	2	NC
COD	14	15	23
Chloride	32	32	25
Oil and Grease	1*	1*	NC
Fluoride	1.0	1.2	1.0
Nitrogen, Ammonia	0.34	0.58	0.91
Nitrogen, Nitrate	0.47	1.3	0.94
Nitrogen, Nitrite			0.01
Total Dissolved Solids	1260	1400	1110
Total Suspended Solids	6*	6*	27*
Sulfate	760	840	740
pH (lab)	7.2*	7.1*	7.0*
TRACE INORGANIC COMPOUNDS (mg/l)			
Arsenic	0.046	0.054	0.068
Copper			NC
Zinc	0.78	0.544	0.635

Notes:

* Sample fraction not filtered.

No value denotes not detected.

NC denotes not calculated (constituent eliminated from monthly monitoring program).

A value of one-half the detection limit used in averaging not detected values.

The average value of the duplicate sample results used in overall averaging.

Attachment 1
Laboratory Data Sheets
Monthly Monitoring Program



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

JUN 28 1991

Ms. Susan Mulholland
CH2M HILL
1890 Maple Ave
Suite 200
Evanston, IL 60201

06/25/1991

Sample No.: 142472

Job No.: 91.1642

Sample Description: DEC-SP1-G-1
CH128770.B0.SP; DuPont

Date Taken: 06/06/1991
Time Taken: 09:00

Date Received: 06/07/1991
Time Received: 09:30

BOD, Five Day	1.	mg/L
Chloride	26.	mg/L
COD, Total	<3.	mg/L
Fluoride	0.8	mg/L
N-Ammonia	0.56	mg/L
N-Nitrate	1.43	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	1.	mg/L
pH	7.0	units
Solids, Total Dissolved	1360.	mg/L
Solids, Total Suspended	11.	mg/L
Sulfate	870.	mg/L
Arsenic, AA	0.073	mg/L
Copper, ICP	0.050	mg/L

Kelly Jones
Kelly Jones
Project Manager



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TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

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ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Ave
Suite 200
Evanston, IL 60201

06/25/1991

Sample No.: 142472

Job No.: 91.1642

Sample Description: DEC-SP1-G-1
CH128770.B0.SP; DuPont

Date Taken: 06/06/1991
Time Taken: 09:00

Date Received: 06/07/1991
Time Received: 09:30

Zinc, ICP

0.981

mg/L

Kelly Jones
Project Manager



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NET Midwest, Inc.
Bartlett Division
859 West Bartlett Road
Bartlett, IL 60103

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ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Ave
Suite 200
Evanston, IL 60201

06/25/1991

Sample No.: 142473

Job No.: 91.1642

Sample Description: DEC-FRSP1-G-1
CH128770.E0.SP; DuPont

Date Taken: 06/06/1991
Time Taken: 09:00

Date Received: 06/07/1991
Time Received: 09:30

BOD, Five Day	<1.	mg/L
Chloride	26.	mg/L
COD, Total	13.	mg/L
Fluoride	0.8	mg/L
N-Ammonia	2.56	mg/L
N-Nitrate	3.46	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	1.	mg/L
pH	7.1	units
Solids, Total Dissolved	1400.	mg/L
Solids, Total Suspended	7.	mg/L
Sulfate	840.	mg/L
Arsenic, AA	0.071	mg/L
Copper, ICP	<0.050	mg/L

Kelly Jones
Kelly Jones
Project Manager



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ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Ave
Suite 200
Evanston, IL 60201

06/25/1991

Sample No.: 142473

Job No.: 91.1642

Sample Description: DEC-FRSP1-G-1
CH128770.B0.SP; DuPont

Date Taken: 06/06/1991
Time Taken: 09:00

Date Received: 06/07/1991
Time Received: 09:30

Zinc, ICP

0.977

mg/L

Kelly Jones
Project Manager



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856 West Bartlett Road
Bartlett, IL 60103

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Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Ave
Suite 200
Evanston, IL 60201

07/01/1991

Sample No.: 143057

Job No.: 91.1772

Sample Description: DEC-SP1-6-2T
CHI28770.B0.MS DuPont

Date Taken: 06/13/1991
Time Taken: 12:00

Date Received: 06/14/1991
Time Received: 10:45

Chloride	20.	mg/L
COD, Total	29.	mg/L
Fluoride	0.6	mg/L
N-Ammonia	0.46	mg/L
N-Nitrate	0.94	mg/L
N-Nitrite	0.04	mg/L
pH	7.0	units
Solids, Total Dissolved	380.	mg/L
Solids, Total Suspended	8.	mg/L
Sulfate	490.	mg/L
Arsenic, AA	0.0340	mg/L
Zinc, ICP	0.454	mg/L

Kelly Jones

Kelly Jones
Project Manager



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ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Ave
Suite 200
Evanston, IL 60201

07/03/1991

Sample No.: 143439

Job No.: 91.1913

Sample Description: DEC-SP1-6-3
CH128770.B0.MS; DuPont

Date Taken: 06/20/1991
Time Taken: 08:25

Date Received: 06/21/1991
Time Received: 09:00

Chloride	28.	mg/L
COD, Total	26.	mg/L
Fluoride	1.1	mg/L
N-Ammonia	0.60	mg/L
N-Nitrate	0.31	mg/L
N-Nitrite	<0.01	mg/L
pH	6.9	units
Solids, Total Dissolved	1410.	mg/L
Solids, Total Suspended	19.	mg/L
Sulfate	780.	mg/L
Arsenic, AA	0.0990	mg/L
Zinc, ICP	0.634	mg/L

Kelly Jones

Kelly Jones
Project Manager



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Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Av.
Suite 200
Evanston, IL 60201

07/03/1991

Sample No.: 143833

Job No.: 91.2024

Sample Description: DEC-SP1-6--3
CHI28770.B0.MS; DuPont

Date Taken: 06/27/1991
Time Taken: 13:22

Date Received: 06/28/1991
Time Received: 10:00

Chloride	24.	mg/L
COD, Total	29.	mg/L
Fluoride	1.5	mg/L
N-Ammonia	1.03	mg/L
N-Nitrate	0.08	mg/L
N-Nitrite	<0.01	mg/L
pH	7.0	units
Solids, Total Dissolved	1260.	mg/L
Solids, Total Suspended	71.	mg/L
Sulfate	850.	mg/L
Arsenic, AA	0.0650	mg/L
Zinc, AA	0.473	mg/L

results by 7/12

Kelly Jones
Project Manager

Page 1

PRELIMINARY REPORT

* Verbal result
(0.0650 mg/L)
received from
laboratory 7/10.
Final report to
follow. SEM

Attachment 2
Data Validation Summary
Monthly Monitoring Program

MEMORANDUM

CH2M HILL

TO: Pixie Newman/CHI
Susan Mulholland/CHI

FROM: Dan MacGregor/GLO

DATE: July 8, 1991

SUBJECT: Data Validation for Seep Samples
Du Pont East Chicago, Indiana

PROJECT: CHI28770.B0.MR

INTRODUCTION

This memorandum presents the data validation discussion for the inorganic analytical results for samples collected on June 6, 13, 20, and 27, 1991, at the Du Pont plant in East Chicago, Indiana. Seep sampling was performed in compliance with the U.S. EPA-requested "monthly monitoring program."

Seep samples were analyzed for major ions and selected metals by NET Laboratories in Bartlett, Illinois. Sample collection and transport were performed under strict chain-of-custody procedures. Requested QA/QC data were limited to holding time data, chain-of-custody forms, calibration and procedure blank results, initial calibration verification and standard recoveries, continuing calibration recovery results, sample duplicate results, matrix spike and matrix spike duplicate results, and laboratory spike results. The QA/QC and sample data were reviewed as described below.

HOLDING TIMES

Inspection of holding times for the inorganic analyses showed that all holding times were met.

CHAIN OF CUSTODY

The chain of custody forms were reviewed for accuracy and completeness. All necessary information was provided and found to be accurate. All requested analyses were performed, and the data packages were complete.

BLANKS

The calibration and procedure blank results were inspected for possible contaminants. Zinc was found in the June 13, 20, and 27 procedure blanks. Zinc results from these dates were qualified as blank contaminated "B." All other blanks were free of compound concentrations at levels equal to or greater than their reporting limits.

INITIAL CALIBRATION VERIFICATION STANDARD RECOVERIES

The initial calibration verification standard recoveries were generally within control limits. Fluoride and nitrate recoveries from the June 6 sampling were above control limits, as was the zinc standard recovery from the June 13 sampling. The June 6 fluoride and nitrate sample results were qualified as "J," estimated. Due to the zinc result from the June 13 sampling date being previously qualified as blank contaminated, no further qualifying action was taken.

CONTINUING CALIBRATION RECOVERIES

Continuing calibration recoveries were found to be within control limits for all compounds.

LABORATORY CONTROL SPIKES

All laboratory spike recoveries were within control limits. No qualifying action was required.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE FORTIFICATIONS

Generally the matrix spike and matrix spike duplicate results were within control limits. Nitrite from the June 6 sampling, and sulfate from the June 13 and 20 samplings were found to have high relative percent differences. The June 6 sampling contained no nitrite so no qualifying action for this compound was required. The sulfate results for the two above mentioned dates were qualified as estimated "J."

RESULTS

Duplicate samples (DEC-SP1-G-1 and DEC-FRSP1-G-1) were taken during the June 6th sampling event, these sample results compared well. The results from this round of sampling were compared, and found to be consistent, with data from previous sample events.

With the exception of previously noted qualifiers, all results were found to be complete and accurate.

CHM HILL TRANSMITTAL

TO E.I. DU PONT DE NEMOURS FROM SUSAN MULHOLLAND
LEGAL DEPARTMENT
DU PONT BUILDING
ROOM 7007
WILMINGTON DE 19898
 ATTN NORMAN GRIFFITHS DATE 7/15/91
 RE EAST CHICAGO SEEP PROJECT NUMBER CHE 28770 BØ MR

File. SEEP.
1890 MAPLE AVENUE
SUITE 200
EVANSTON IL 60201
708/866-9490

WE ARE SENDING YOU

- ☒ ATTACHED ☐ UNDER SEPARATE COVER VIA _____
☐ SHOP DRAWINGS ☐ DOCUMENTS ☐ TRACINGS
☐ PRINTS ☐ SPECIFICATIONS ☐ CATALOGS
☐ COPY OF LETTER ☐ _____

QUANTITY	DESCRIPTION
1	UPDATED ANALYTICAL REPORT (JUNE MONTHLY MONITORING REPORT)
	<p>Pixie & Sue 7/18/91</p> <p>Said DATA ALREADY TO EPA BUT THIS SHEET WAS MISSING AN SERVIC BECAUSE QA QC JUST FINISHED 7/14 & WASN'T TIME TO GET PAPER TO GRIFFITHS. THEY HAD THE VERBAL # FROM LAB & INCLUDED IT IN THE REPORT. IT DIDN'T CHANGE. ATTACHED THIS SHEET TO NEXT MONTHLY REPORT W A LETTER.</p> <p>John Hunter</p>

IF MATERIAL RECEIVED IS NOT AS LISTED, PLEASE NOTIFY US AT ONCE

REMARKS _____

COPY TO HILTON FREY, GENE HARTSTEIN, O.J. MEYER,
NORMAN BELL, STEPHEN CLINE, DIANE HECK



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Av.
Suite 200
Evanston, IL 60201

07/09/1991

Sample No.: 143833

Job No.: 91.2024

Sample Description: DEC-SP1-6-3
CHI28770.B0.MS; DuPont

Date Taken: 06/27/1991
Time Taken: 13:22

Date Received: 06/28/1991
Time Received: 10:00

Chloride	24.	mg/L
COD, Total	29.	mg/L
Fluoride	1.5	mg/L
N-Ammonia	1.03	mg/L
N-Nitrate	0.08	mg/L
N-Nitrite	<0.01	mg/L
pH	7.0	units
Solids, Total Dissolved	1260.	mg/L
Solids, Total Suspended	71.	mg/L
Sulfate	850.	mg/L
Arsenic, AA	0.0650	mg/L
Zinc, ICP	0.473	mg/L

Kelly Jones

Kelly Jones
Project Manager



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

230 SOUTH DEARBORN ST.

CHICAGO, ILLINOIS 60604

JUN 27 1991

REPLY TO THE ATTENTION OF:

5WCC-TUB-8

CERTIFIED MAIL P 606 819 834
RETURN RECEIPT REQUESTED

Norman D. Griffiths, Esq.
E.I. DuPont DeNemours & Co., Inc.
Legal Department, Suite D-7007
1007 Market Street
Wilmington, Delaware 19898

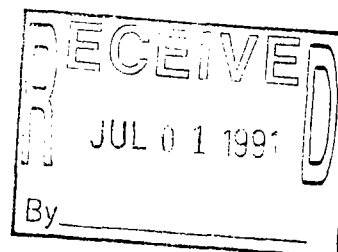
Re: Section 308 (Clean Water Act)
Information Request
E.I. DuPont DeNemours & Co., Inc.
NPDES Permit No. IN0000329
Docket No. V-W-91-308-11

Dear Mr. Griffiths:

This letter is to respond to DuPont's concerns and to amend the above referenced Information Request as follows:

1. Two additional seeps have been found since the initial request, and DuPont has initiated a sampling program similar to the "one-time" and "monthly" monitoring programs requested on the first seeps. We ask that you provide us with this data and continue the monthly monitoring for a period not to exceed one year.
2. DuPont suggested that single grab samples can be substituted for composite samples, as supported by Table 2, "Comparison of Composite Sample Analytical Results to Grab Sample Analytical Results." We concur, and 3A2 shall be revised to require "weekly grab samples comprising ..., collected at regular intervals"....
3. DuPont suggested elimination of analyses for several parameters, we agree that analyses for some of these parameters can be eliminated for only the first seeps at this time. They are:

BOD - Five Day
Oil and Grease
Copper



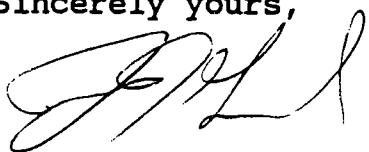
After review of subsequent reports, additional parameters can be dropped. Further, upon review of data on the other seeps, similar screening can be done.

4. For clarification purposes, please assign an identification name to each seep (like seep 1, seep 2 and seep 3) and locate on the sketch previously provided. This can accompany your next submittal.

Finally, the March and May submittals were provided by Mr. E. F. Hartstein and the April submittal was provided by you. I assume that you are DuPont's designated contact consistent with your letter of February 21, 1991. Please note the reminder in our March 18, 1991, letter that any written statements submitted pursuant to the subject Request must be notarized and returned under an authorized signature certifying that all contents contained herein are true and accurate to the best of the signatory's knowledge and belief. (See last paragraph on page 5 of the Request).

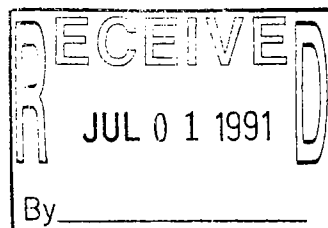
If you have any questions, please contact Mr. James Novak at (312) 886-0177.

Sincerely yours,



D Dale S. Bryson
Director, Water Division

cc: ✓ E.F. Hartstein, DuPont
Mark Stanifer, IDEM





E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED

EAST CHICAGO, INDIANA 46312

CHEMICALS AND PIGMENTS DEPARTMENT

bcc: Hilton Frey, BOD 918-14, Wilm.
Norman Griffiths, D-7007, Wilm.
Norman Bell, B-12258, Wilm.
Stephen Cline, Bellevue, Corp., Wilm.
Diane Heck, L33E45, Wilm.
Pixie Newman, CH2MHill
O. J. Meyer, Chemicals, E.Chgo., IN.

June 13, 1991

Dale S. Bryson, Director
Water Division
United States Environmental Protection Agency
Region V (5WCC-TUB-8)
230 South Dearborn Street
Chicago, Illinois 60604

Subject: Section 308 (Clean Water Act)
Information Request

Attached is the May Monthly Monitoring Report for the ground-water seep covered in your section 308 information request (Dockut No. V-W-91-308-11).

Beginning with the June sample DuPont has replaced composite sampling with a single grab sample. As noted in the attached report several constituents have consistently been at, below, or just slightly above their method detection limits. They are:

- o BOD-five day
- o COD
- o Oil and grease
- o Nitrite
- o Copper

Based on this information DuPont believes we should discontinue performing these analyses.

Based on a phone conversation today with Mr. Novak, it is our understanding that USEPA agrees to elimination of BOD-5 day, Oil and grease, and copper. It is our understanding that USEPA will reconsider elimination of other constituent analyses in the future when additional data are provided.

If you have any questions I may be reached at (219) 391-4601.

Sincerely,



E. F. Hartstein
Plant Manager

EFH/pjp

Encl.

cc: Assistant Commissioner for Water Management
IDEM
105 South Meridian Street
P. O. Box 6015
Indianapolis, Indiana 46206-6015

Certification of Du Pont Responses (3/14/91) - 308 Request for Information

I, Eugene F. Hartstein, Manager of Du Pont's East Chicago Plant, certify that the attached analytical results are correct and accurate to the best of my knowledge and belief. Should subsequent information come to my attention that indicates that any portion of these data are incorrect, I will so notify Region V.



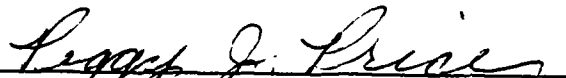
Date:

E. F. Hartstein, Plant Manager
Du Pont East Chicago Plant

STATE OF INDIANA)

LAKE COUNTY)

Before me, Peggy J. Price, this 13 day of June, 1991, personally appeared E. I. du Pont de Nemours and Company by Eugene F. Hartstein, Plant Manager, Du Pont East Chicago Plant and acknowledged the execution of the foregoing instrument.


Notary Public

My commission expires: 3/17/93

CH²M HILL TRANSMITTAL

TO E.L. DUFONT DE VERMOREL FROM

LEGAL DEPARTMENT

Du Pont Building

Room 7007

WUMINGTON DE 1980

ATTN

NORMAN GRIFFITHS

RE

EAST CHICAGO SEEP

DATE _____

6/12/91

PROJECT
NUMBER

CHI 28770. B0. MR

WE ARE SENDING YOU

☒ ATTACHED

☐ UNDER SEPARATE COVER VIA

☐ SHOP DRAWINGS

☒ DOCUMENTS

□ TRACINGS

☐ PRINTS

□ SPECIFICATIONS

☐ CATALOGS☐ COPY OF LETTER[illegible]

IF MATERIAL RECEIVED IS NOT AS LISTED, PLEASE NOTIFY US AT ONCE

REMARKS

COPY TO

HILTON FREY GENE HARTSTEIN O.J. MEYER

NORMAN BELL, STEVE CLINE, DIANE HECK

**May Monthly Monitoring Report
for the Groundwater Seep at the
Du Pont East Chicago Plant
East Chicago, Indiana**

Prepared by CH2M HILL
on behalf of
E.I. Du Pont de Nemours & Company

June 12, 1991

INTRODUCTION

In response to U.S. EPA's Section 308 Information Request, Du Pont is submitting this monthly monitoring report characterizing the quality of the groundwater seep at Du Pont's East Chicago Plant. This report contains the results of the "monthly monitoring program" for May 1991 specified in U.S. EPA's request.

SAMPLE COLLECTION AND ANALYSIS

Samples of the groundwater seep were collected on May 2, 9, 16, 23, and 30, 1991. The flow rate of the seep averaged 0.48 gallons per minute (gpm) on May 2; 0.97 gpm on May 9; 0.78 gpm on May 16; 0.87 gpm on May 23; and 1.2 gpm on May 30.

The "monthly monitoring program" sampling activities consisted of obtaining an 8-hour composite sample of seep water collected at 0-, 4-, and 8-hour intervals, once per week. Seep flow rates were measured and recorded at each sampling interval. Sample fractions collected for oil and grease, total suspended solids, and pH analyses were not filtered. All other sample fractions were filtered.

After the samples were collected, filtered, and preserved, as appropriate, the samples were shipped via overnight courier to National Environmental Testing, Inc. (NET) analytical laboratory in Bartlett, Illinois. The samples were then analyzed for the following

constituents specified in U.S. EPA's request: BOD-five day, COD, ammonia-N, nitrate, nitrite, sulfate, chloride, fluoride, oil and grease, total dissolved solids, total suspended solids, arsenic, copper, zinc, and pH.

For quality assurance/quality control (QA/QC) purposes, a duplicate sample and a field blank were collected on May 2.

ANALYTICAL RESULTS AND INTERPRETATION

Table 1 summarizes the analytical results of the "monthly monitoring program" for the seep during the month of May. The analytical results for the duplicate samples collected on May 2 are shown separated by a slash in the first data column of Table 1. All laboratory data sheets for the seep samples collected and analyzed during May for the "monthly monitoring program" are provided in Attachment 1. Attachment 2 contains a data validation summary of QA/QC information associated with the analysis of the May seep samples.

Three of the constituents being monitored have concentrations consistently at or below method detection limits: oil and grease, nitrite, and copper. Reported concentrations for BOD-five day and COD were only slightly above their respective method detection limits in the "one-time monitoring program" sample collected on March 6, 1991, and have remained at these levels throughout the "monthly monitoring program."

The remaining constituents analyzed as part of the "monthly monitoring program" for the seep have remained at relatively consistent levels over the reporting period with the following exceptions: ammonia-N, nitrate, arsenic, and zinc. Ammonia-N levels have ranged from 0.41 to 0.75 mg/l; nitrate levels have ranged from 0.16 to 2.31 mg/l; arsenic levels have ranged from 0.015 to 0.085 mg/l; and zinc levels have ranged from 0.373 to 0.717 mg/l. As was the case in April, zinc concentration appears to increase with increases in seep flow rate.

Although minor variations have been observed from week to week, average parameter values for the two sets of complete monthly monitoring data (April and May) are very similar (Table 2).

TABLE 1

CONSTITUENTS DETECTED IN SEEP WATER
MAY MONTHLY MONITORING PROGRAM
MAY 1991

Sample ID:	DEC-SP1-5-1T	DEC-SP1-5-2T	DEC-SP1-5-3T	DEC-SP1-5-4T	DEC-SP1-5-5T	
Lab:	NET	NET	NET	NET	NET	
Lab ID:	132290/ 132291	132803	137120	141634	141977	
Date:	5/2/91	5/9/91	5/16/91	5/23/91	5/30/91	
Filtered (Yes/No):	Yes	Yes	Yes	Yes	Yes	Average
AVERAGE FLOW RATE (gpm)	0.48	0.97	0.78	0.87	1.2	0.86
WATER QUALITY PARAMETERS (mg/l)						
BOD-Five Day	5/	2	2	2	3	2
COD	29J/59J	13		16		15
Chloride	16/32	38	28	42	26	32
Oil and Grease	1*J/3*J	1*	1*J	2*B		1*
Fluoride	0.1/1.0	0.9J	2.8	0.7	0.9	1.2
Nitrogen, Ammonia	0.41/0.45	0.47	0.61	0.75	0.66	0.58
Nitrogen, Nitrate	0.16/0.18	1.12	2.31	2.22	0.71	1.3
Nitrogen, Nitrite	/					
Total Dissolved Solids	1370/1380	1420	1420	1400	1420	1400
Total Suspended Solids	4*/*	7*	11*	8*J	4*	6*
Sulfate	1120/930	830	790	770	790	840
pH (lab)	7.2*/7.2*	7.0*	7.0*	7.2*	7.1*	7.1*
TRACE INORGANIC COMPOUNDS (mg/l)						
Arsenic	0.0450/0.0460	0.052J	0.0710J	0.015	0.0850	0.054
Copper	/					
Zinc	0.4528/0.4658	0.676	0.373	0.496	0.717	0.544

Notes:

* Sample fraction not filtered.

No value denotes not detected.

J denotes estimated value.

B denotes blank contamination.

A value of one-half the detection limit used in averaging not detected values.

The average value of the duplicate sample results used in overall averaging.

TABLE 2
AVERAGE CONCENTRATIONS IN SEEP WATER
MONTHLY MONITORING PROGRAM

	April	May
AVERAGE FLOW RATE (gpm)	0.78	0.86
WATER QUALITY PARAMETERS (mg/l)		
BOD-Five Day	2	2
COD	14	15
Chloride	32	32
Oil and Grease	1*	1*
Fluoride	1.0	1.2
Nitrogen, Ammonia	0.34	0.58
Nitrogen, Nitrate	0.47	1.3
Nitrogen, Nitrite		
Total Dissolved Solids	1260	1400
Total Suspended Solids	6*	6*
Sulfate	760	840
pH (lab)	7.2*	7.1*
TRACE INORGANIC COMPOUNDS (mg/l)		
Arsenic	0.046	0.054
Copper		
Zinc	0.78	0.544

Notes:

* Sample fraction not filtered.

No value denotes not detected.

A value of one-half the detection limit used in averaging not detected value

The average value of the duplicate sample results used in overall averaging.



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Ave.
Suite 200
Evanston, IL 60201

05/16/1991

Sample No.: 132290

Job No.: 91.0939

Sample Description: DEC-SP1-5-1T
CH128770.B0.MS; DuPont

Date Taken: 05/02/1991
Time Taken: 08:00

Date Received: 05/03/1991
Time Received: 09:45

BOD, Five Day	5.	mg/L
Chloride	16.	mg/L
COD, Total	29.	mg/L
Fluoride	0.1	mg/L
N-Ammonia	0.41	mg/L
N-Nitrate	0.16	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	1.	mg/L
pH	7.2	units
Solids, Total Dissolved	1370.	mg/L
Solids, Total Suspended	4.	mg/L
Sulfate	1120.	mg/L
Arsenic, AA	0.0450	mg/L
Copper, ICP	<0.010	mg/L
Zinc, ICP	0.452	mg/L

Kelly Jones

Kelly Jones
Project Manager



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ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Ave.
Suite 200
Evanston, IL 60201

05/16/1991

Sample No.: 132291

Job No.: 91.0939

Sample Description: DEC-FRSP1-5-1T
CH128770.B0.MS; DuPont

Date Taken: 05/02/1991
Time Taken: 08:00

Date Received: 05/03/1991
Time Received: 09:45

BOD, Five Day	<1.	mg/L
Chloride	32.	mg/L
COD, Total	59.	mg/L
Fluoride	1.0	mg/L
N-Ammonia	0.45	mg/L
N-Nitrate	0.18	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	3.	mg/L
pH	7.2	units
Solids, Total Dissolved	1380.	mg/L
Solids, Total Suspended	<1.	mg/L
Sulfate	930.	mg/L
Arsenic, AA	0.0460	mg/L
Copper, ICP	<0.010	mg/L
Zinc, ICP	0.465	mg/L

Kelly Jones

Kelly Jones
Project Manager



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850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Av.
Suite 200
Evanston, IL ~~60016~~

05/23/1991

Sample No.: 132803

Job No.: 91.1095

Sample Description: DEC-SP1-5-2T
CH28770.B0.MS; DuPont

Date Taken: 05/09/1991
Time Taken: 16:00

Date Received: 05/10/1991
Time Received: 10:00

BOD, Five Day	2.	mg/L
Chloride	38.	mg/L
COD, Total	13.	mg/L
Fluoride	0.9	mg/L
N-Ammonia	0.47	mg/L
N-Nitrate	1.12	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	1.	mg/L
pH	7.0	units
Solids, Total Dissolved	1420.	mg/L
Solids, Total Suspended	7.	mg/L
Sulfate	830.	mg/L
Arsenic, AA	0.052	mg/L
Copper, AA	<0.050	mg/L
Zinc, AA	0.676	mg/L

Kelly Jones

Kelly Jones
Project Manager



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TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Avenue
Evanston, IL 60201

05/31/1991

Sample No.: 137120

Job No.: 91.1220

Sample Description: DEC-SP1-5-3T; Composite
CH128770.30.MS; DuPont

Date Taken: 05/16/1991
Time Taken:

Date Received: 05/17/1991
Time Received: 10:00

BOD, Five Day	2.	mg/L
Chloride	28.	mg/L
COD, Total	<3.	mg/L
Fluoride	2.8	mg/L
N-Ammonia	0.61	mg/L
N-Nitrate	2.31	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	1.	mg/L
pH	7.0	units
Solids, Total Dissolved	1420.	mg/L
Solids, Total Suspended	11.	mg/L
Sulfate	790.	mg/L
Arsenic, AA	0.0710	mg/L
Copper, AA	<0.050	mg/L
Zinc, AA	0.373	mg/L

Kelly Jones

Kelly Jones
Project Manager



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Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

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Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Avenue
Suite 200
Evanston, IL 60201

06/11/1991

Sample No.: 141634

Job No.: 91.1396

Sample Description: DEC-SP1-5-4T
CH128770.B0.3S; DuPont

Date Taken: 05/23/1991
Time Taken: 08:00

Date Received: 05/24/1991
Time Received: 09:45

BOD, Five Day	2.	mg/L
Chloride	42.	mg/L
COD, Total	16.	mg/L
Fluoride	0.7	mg/L
N-Ammonia	0.75	mg/L
N-Nitrate	2.22	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	2.	mg/L
pH	7.2	units
Solids, Total Dissolved	1400.	mg/L
Solids, Total Suspended	8.	mg/L
Sulfate	770.	mg/L
Arsenic, AA	0.015	mg/L
Copper, AA	<0.050	mg/L
Zinc, AA	0.496	mg/L

Kelly Jones

Kelly Jones
Project Manager



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NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Susan Mulholland
CH2M HILL
1890 Maple Avenue
Suite 200
Evanston, IL 60201

06/11/1991

Sample No.: 141977

Job No.: 91.1492

Sample Description: DEC-SP1-5-5T; Comp
CH128770.BO.MS; DuPont

Date Taken: 05/30/1991
Time Taken: 10:00

Date Received: 05/31/1991
Time Received: 10:00

BOD, Five Day	3.	mg/L
Chloride	26.	mg/L
COD, Total	<3.	mg/L
Fluoride	0.9	mg/L
N-Ammonia	0.66	mg/L
N-Nitrate	0.71	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	<1.	mg/L
pH	7.1	units
Solids, Total Dissolved	1420.	mg/L
Solids, Total Suspended	4.	mg/L
Sulfate	790.	mg/L
Arsenic, AA	0.0850	mg/L
Copper, AA	<0.050	mg/L
Zinc, AA	0.717	mg/L

Kelly Jones
Kelly Jones
Project Manager

MEMORANDUM

CH2M HILL

TO: Pixie Newman
FROM: Dan MacGregor/GLO
DATE: June 12, 1991
SUBJECT: Data Validation for Seep Samples
Du Pont East Chicago, Indiana
PROJECT: CHI28770.B0.MR

INTRODUCTION

This memorandum presents the data validation discussion for the inorganic analytical results for samples collected on May 2, 9, 16, 23, and 30, 1991, at the Du Pont plant in East Chicago, Indiana. Seep sampling was performed in compliance with the U.S. EPA-requested "monthly monitoring program."

Seep samples were analyzed for major ions and selected metals by NET Laboratories in Bartlett, Illinois. Sample collection and transport were performed under strict chain-of-custody procedures. Requested QA/QC data were limited to holding time data, chain-of-custody forms, calibration and procedure blank results, initial calibration verification and standard recoveries, continuing calibration recovery results, sample duplicate results, matrix spike and matrix spike duplicate results, and laboratory spike results. The QA/QC and sample data were reviewed as described below.

HOLDING TIMES

Inspection of holding times for the inorganic analyses showed that all holding times, with the exception of total suspended solids (TSS) from the May 23 sampling, were met. The TSS result from that date was qualified as estimated "J."

CHAIN OF CUSTODY

The chain of custody forms were reviewed for accuracy and completeness. All necessary information was provided and found to be accurate. All requested analyses were performed, and the data packages were complete.

M E M O R A N D U M

Page 2

June 12, 1991

CHI28770.B0.MR

BLANKS

A field blank was collected and analyzed as part of the May 2nd sampling event. The field blank contained low levels of BOD, chloride, COD, ammonia, nitrate, oil and grease, and total suspended and dissolved solids. The field blank water was a commercially available brand of distilled water. The quality of this water is unknown, thus making it inappropriate to qualify any data results based on this information. The field blank results demonstrate that any contamination that was occurring was of analytically insignificant proportion.

The calibration and procedure blank results were inspected for possible contaminants. All but two blanks were free of compound concentrations at levels equal to or greater than their reporting limits. Oil and grease contamination, at 2 ppm, was found in the May 23 procedure blank, and zinc at 0.037 ppm was found in the May 2 procedure blank. The oil and grease and zinc results from these dates were qualified as blank contaminated "B."

INITIAL CALIBRATION VERIFICATION STANDARD RECOVERIES

The initial calibration verification standard recoveries were generally within control limits. The fluoride recovery from the May 9 sampling was above control limits, and the arsenic recovery from the May 16 sampling was below control limits. The sample results for these parameters for these sampling dates were qualified as "J," estimated.

CONTINUING CALIBRATION RECOVERIES

Continuing calibration recoveries were within control limits for all compounds except arsenic from the May 16 sampling and total COD from the May 2 sampling. Due to the arsenic result from this date being previously qualified as estimated, no further qualifying action was required for arsenic. The COD results from the May 2 sampling were qualified as estimated "J."

LABORATORY CONTROL SPIKES

The oil and grease laboratory control spike recoveries were below control limits for the May 2, 16, and 23, sampling dates. The sample result for oil and grease from the May 23 sampling date had been previously qualified as blank contaminated, so this result required no further

MEMORANDUM

Page 3

June 12, 1991

CHI28770.B0.MR

qualifying action. The May 2 and 16 results were qualified as estimated "J." All other laboratory spike recoveries were within control limits.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE FORTIFICATIONS

Generally the matrix spike and matrix spike duplicate results were within control limits. Oil and grease from the May 16 sampling, arsenic from the May 9 sampling, and zinc from the May 2 sampling were outside control limits. Sample results for oil and grease and arsenic from their respective dates were qualified as estimated "J." The May 2 zinc results were previously qualified as blank contaminated, so no additional qualifiers for this compound were required.

RESULTS

During the May 2 sampling event, duplicate composite samples (DEC-SP1-5-1T and DEC-FRSP1-5-1T) were taken. These sample results did not compare well. The duplicate sample results varied by as much as a factor of ten. The sample results associated with the site are typically very low. At these levels some variance should be expected. To further check sample precision, results from this month's sampling events were compared with previous seep results. In reviewing these results it was noted that the results from this round of sampling fell into the range of previous sample results, so no qualifying action due to poor sample precision was taken.

With the exception of previously noted qualifiers, all results were found to be complete and accurate.

CHI181/012.51



REG. U.S. PAT. & TM. OFF.
ESTABLISHED 1802

E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
EAST CHICAGO, INDIANA 46312

cc: N. D. Griffiths, M3728, Wilm.
P. Newman, CH2MHill
O. J. Meyer, East Chicago
Environmental File

CHEMICALS AND PIGMENTS DEPARTMENT

June 4, 1991

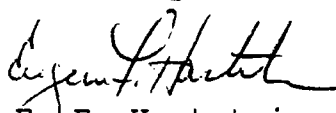
Mr. Jim Novak
USEPA Region V
Water Division 5WCC
230 South Dearborn St.
Chicago, IL 60604

61500

Dear Jim:

Since I have not yet received the modified §308 information request you indicated would be forthcoming I want to document one point of agreement during our telephone conversation the week of May 20. In our discussion of the need for composite samples for the monthly sampling of seeps you agreed that, based on the lack of difference between individual samples comprising a composite sample, a single grab sample would be appropriate for sampling seeps. We have instructed our consultant CH2MHill to take single grab samples for the June monthly seep sample. The samples will be taken later this week.

Sincerely,


E. F. Hartstein
Plant Manager



E. I. DU PONT DE NEMOURS & COMPANY

INCORPORATED

EAST CHICAGO, INDIANA 46312

CHEMICALS AND PIGMENTS DEPARTMENT

bcc: Hilton Frey, BOD 918-14, Wilm.
Norman Griffiths, D-7007, Wilm.
Norman Bell, B-12258, Wilm.
Stephen Cline, Bellevue Corp., Wilm.
Diane Heck, L33E45, Wilm.
Pixie Newman, CH2MHill
O. J. Meyer, Chemicals, E. Chgo., IN

May 14, 1991

Dale S. Bryson, Director
Water Division
United States Environmental Protection Agency
Region V (SWCC-TUB-8)
230 South Dearborn Street
Chicago, Illinois 60604

Subject: Section 308 (Clean Water Act)
Information Request

Attached is the April Monthly Monitoring Report for the ground-water seep covered in your section 308 information request (Dockut No. V-W-91-308-11).

As noted in the attached report several constituents have consistently been at, below, or just slightly above their method detection limits. They are:

- o BOD-five day
- o COD
- o Oil and grease
- o Nitrate
- o Nitrite
- o Ammonia-N
- o Copper

Based on this information DuPont plans to discontinue performing these analyses beginning with the June, 1991 monthly sampling effort.

Also as noted in the attached report, we have observed little difference between the 8 hour composite sample and the 0 hour, 4 hour, and 8 hour grab samples, therefore, we will also substitute a single grab sample for a composite beginning with the June, 1991 monthly sampling effort.

If you have any problems with this approach please let me know on or before June 1.

Sincerely,



E. F. Hartstein
Plant Manager

EFH/pjp

Encl.

cc: Assistant Commissioner for Water Management
IDEM
105 South Meridian Street
P. O. Box 6015
Indianapolis, Indiana 46206-6015

**April Monthly Monitoring Report
for the Groundwater Seep at the
Du Pont East Chicago Plant
East Chicago, Indiana**

Prepared by CH2M HILL
on behalf of
E.I. Du Pont de Nemours & Company

May 10, 1991

INTRODUCTION

In response to U.S. EPA's Section 308 Information Request, Du Pont is submitting this monthly monitoring report characterizing the quality of the groundwater seep at Du Pont's East Chicago Plant. This report contains the results of the "monthly monitoring program" for April 1991 specified in U.S. EPA's request.

SAMPLE COLLECTION AND ANALYSIS

Samples of the groundwater seep were obtained April 4, 11, 18, and 25, 1991. The flow rate of the seep averaged 0.32 gallons per minute (gpm) on April 4; 0.013 gpm on April 11; 1.57 gpm on April 18; and 1.12 gpm on April 25.

The "monthly monitoring program" sampling activities consisted of obtaining 8-hour composite samples of seep water collected at 0-, 4-, and 8-hour intervals. Seep flow rates were measured and recorded at each interval. Sample fractions collected for oil and grease, total suspended solids, and pH analyses were not filtered. All other sample fractions were filtered.

After the samples were collected, filtered, and preserved, as appropriate, the samples were shipped via overnight courier to National Environmental Testing, Inc. (NET) analytical laboratory in Bartlett, Illinois. The samples were then analyzed for the following

constituents specified in U.S. EPA's request: BOD-five day, COD, ammonia-N, nitrate and nitrite, sulfate, chloride, fluoride, oil and grease, total dissolved solids, total suspended solids, arsenic, copper, zinc, and pH.

For quality assurance/quality control (QA/QC) purposes, a duplicate sample was collected on April 4.

On April 4, grab samples were collected at each composite sampling interval to compare their analytical results to the composite sample analytical results.

ANALYTICAL RESULTS AND INTERPRETATION

Tables 1 and 2 summarize the analytical results of the "monthly monitoring program" for the seep during the month of April. The analytical results for the duplicate samples collected on April 4 are shown separated by a slash in the first data column of Table 1. All laboratory data sheets for the seep samples collected and analyzed during April for the "monthly monitoring program" are provided in Attachment 1. Attachment 2 contains a data validation summary of QA/QC information associated with the analysis of the April seep samples.

Four of the constituents being monitored have concentrations consistently at or below method detection limits: BOD-five day, oil and grease, nitrite, and copper. Reported concentrations for COD, ammonia-N, and nitrate were only slightly above their respective method detection

limits in the "one-time monitoring program" sample collected on March 6, 1991, and have remained at these levels throughout the "monthly monitoring program."

The remaining constituents analyzed as part of the "monthly monitoring program" for the seep have remained at relatively consistent levels over this reporting period. The only exception was the zinc concentration which appears to be directly related to seep flow rate.

Table 2 contains the analytical results of the duplicate pair of composite samples and the three grab samples obtained on April 4. Analytical results for each grab sample obtained compare well with those for the composite samples.

Only one constituent in each grab sample was detected at a level greater than 50-percent different than either of the composite samples. In the 0-hour grab sample, total suspended solids was detected at a level greater than 50-percent higher than in either of the composite samples. In both the 4- and 8-hour grab samples, COD was not detected, whereas in the composite samples COD was detected at 46 and 33 mg/l.

CONCLUSIONS

Based on the seep water analytical results obtained during March and April, it is recommended that the following constituents be eliminated from the "monthly monitoring program": BOD-five day, COD, nitrate, nitrite, ammonia-N, oil and grease, and copper.

Comparison of the analytical results for the grab samples and the composite samples obtained from the seep on April 4 supports the recommendation in the "March Monthly Monitoring Report" to switch to the collection of a grab sample instead of the 8-hour composite sample currently being collected.

The switch to grab sampling from composite sampling, and the elimination of laboratory analysis of the seven constituents recommended above, should be implemented as soon as possible.

TABLE 1

CONSTITUENTS DETECTED IN SEEP WATER
APRIL MONTHLY MONITORING PROGRAM
APRIL 1991

Sample ID:	DEC-SP1-4-1T	DEC-SP1-4-2T	DEC-SP1-4-3T	DEC-SP1-4-4T	
Lab:	NET	NET	NET	NET	
Lab ID:	130113/ 130114	130967	131461	131844	
Date:	4/4/91	4/11/91	4/18/91	4/25/91	
Filtered (Yes/No):	Yes	Yes	Yes	Yes	Average
AVERAGE FLOW RATE (gpm)	0.32	0.13	1.57	1.12	0.78
WATER QUALITY PARAMETERS (mg/l)					
BOD-Five Day	4J/4J	1			2
COD	46J/33J		13	3	14
Chloride	28/34	30	32	36	32
Oil and Grease	*/*	*	1*J	1*B	1*
Fluoride	1.6J/1.0J	0.7	1.0J	1.0	1.0
Nitrogen, Ammonia	0.28/0.26	0.26	0.39	0.42	0.34
Nitrogen, Nitrate	0.20/0.16	0.25	0.64	0.81	0.47
Nitrogen, Nitrite	/				
Total Dissolved Solids	1180J/1170J	1260	1240	1370	1260
Total Suspended Solids	6*/9*	4*	8*	3*	6*
Sulfate	700/740	740	810	790	760
pH (lab)	7.2*/7.2*	7.2*	7.2*	7.3*	7.2*
TRACE INORGANIC COMPOUNDS (mg/l)					
Arsenic	0.030/0.028	0.0560	0.045J	0.052J	0.046
Copper	/				
Zinc	0.452/0.443	0.388	1.26	1.03	0.78

Notes:

* Sample fraction not filtered.

No value denotes not detected.

J denotes estimated value.

B denotes blank contamination.

A value of one-half the detection limit used in averaging not detected values.

The average value of the duplicate sample results used in overall averaging.

TABLE 2

COMPARISON OF COMPOSITE SAMPLE ANALYTICAL RESULTS
TO GRAB SAMPLE ANALYTICAL RESULTS

	Composite Sample	0-Hour Sample	4-Hour Sample	8-Hour Sample
Sample ID:	DEC-SP1-4-1T	DEC-SP1-4-1A	DEC-SP1-4-1B	DEC-SP1-4-1C
Lab:	NET	NET	NET	NET
Lab ID:	130113/ 130114	130115	130116	130117
Date:	4/4/91	4/4/91	4/4/91	4/4/91
Filtered (Yes/No):	Yes	Yes	Yes	Yes
FLOW RATE (gpm)	0.32 (avg)	0.20	0.46	0.30
WATER QUALITY PARAMETERS (mg/l)				
BOD-Five Day	4J/4J	5J	5J	3J
COD	46J/33J	42J		
Chloride	28/34	26	28	30
Oils and Grease	*/*	*	*	*
Fluoride	1.6J/1.0J	1.0J	0.9J	0.9J
Nitrogen, Ammonia	0.28/0.26	0.19	0.24	0.31
Nitrogen, Nitrate	0.20/0.16	0.14	0.10	0.10
Nitrogen, Nitrite	/			
Total Dissolved Solids	1180J/1170J	1090J	1100J	1160J
Total Suspended Solids	6*/9*	27*	12*	6*
Sulfate	700/740	740	720	780
pH (lab)	7.2*/7.2*	7.3*	7.0*	7.2*
TRACE INORGANIC COMPOUNDS (mg/l)				
Arsenic	0.030/0.028	0.019	0.027	0.045
Copper	/			
Zinc	0.452/0.443	0.328	0.462	0.460

Notes:

* Sample fraction not filtered.

No value denotes not detected.

J denotes estimated value.



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Av.
Suite 200
Evanston, IL 60201

04/26/1991

Sample No.: 130113

Job No.: 91.0363

Sample Description: DEC-SP1-4-1T
CHI28770.BO.SP; DuPont

Date Taken: 04/04/1991
Time Taken: 08:00

Date Received: 04/05/1991
Time Received: 09:50

BOD, Five Day	4.	mg/L
Chloride	28.	mg/L
COD, Total	46.	mg/L
Fluoride	1.6	mg/L
N-Ammonia	0.28	mg/L
N-Nitrate	0.20	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	<1.	mg/L
pH	7.2	units
Solids, Total Dissolved	1180.	mg/L
Solids, Total Suspended	6.	mg/L
Sulfate	700.	mg/L
Arsenic, AA	0.030	mg/L
Copper, ICP	<0.050	mg/L
Zinc, ICP	0.452	mg/L

Kelly Jones

Kelly Jones
Project Manager



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Av.
Suite 200
Evanston, IL 60201

04/26/1991

Sample No.: 130114

Job No.: 91.0363

Sample Description: DEC-FRSP1-4-1T
CHI28770.BO.SP; DuPont

Date Taken: 04/04/1991
Time Taken: 08:00

Date Received: 04/05/1991
Time Received: 09:50

BOD, Five Day	4.	mg/L
Chloride	34.	mg/L
COD, Total	33.	mg/L
Fluoride	1.0	mg/L
N-Ammonia	0.26	mg/L
N-Nitrate	0.16	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	<1.	mg/L
pH	7.2	units
Solids, Total Dissolved	1170.	mg/L
Solids, Total Suspended	9.	mg/L
Sulfate	740.	mg/L
Arsenic, AA	0.028	mg/L
Copper, ICP	<0.050	mg/L
Zinc, ICP	0.443	mg/L

Kelly Jones

Kelly Jones
Project Manager



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ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Av.
Suite 200
Evanston, IL 60201

04/26/1991

Sample No.: 130115

Job No.: 91.0363

Sample Description: DEC-SP1-4-1A
CHI28770.BO.SP; DuPont

Date Taken: 04/04/1991
Time Taken: 09:41

Date Received: 04/05/1991
Time Received: 09:50

BOD, Five Day	5.	mg/L
Chloride	26.	mg/L
COD, Total	42.	mg/L
Fluoride	1.0	mg/L
N-Ammonia	0.19	mg/L
N-Nitrate	0.14	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	<1.	mg/L
pH	7.3	units
Solids, Total Dissolved	1090.	mg/L
Solids, Total Suspended	27.	mg/L
Sulfate	740.	mg/L
Arsenic, AA	0.019	mg/L
Copper, ICP	<0.050	mg/L
Zinc, ICP	0.328	mg/L

Kelly Jones

Kelly Jones
Project Manager



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Av.
Suite 200
Evanston, IL 60201

04/26/1991

Sample No.: 130116

Job No.: 91.0363

Sample Description: DEC-SP1-4-1B
CHI28770.BO.SP; DuPont

Date Taken: 04/04/1991
Time Taken: 13:17

Date Received: 04/05/1991
Time Received: 09:50

BOD, Five Day	5.	mg/L
Chloride	28.	mg/L
COD, Total	<3.	mg/L
Fluoride	0.9	mg/L
N-Ammonia	0.24	mg/L
N-Nitrate	0.10	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	<1.	mg/L
pH	7.0	units
Solids, Total Dissolved	1100.	mg/L
Solids, Total Suspended	12.	mg/L
Sulfate	720.	mg/L
Arsenic, AA	0.027	mg/L
Copper, ICP	<0.050	mg/L
Zinc, ICP	0.462	mg/L

Kelly Jones

Kelly Jones
Project Manager



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ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Av.
Suite 200
Evanston, IL 60201

04/26/1991

Sample No.: 130117

Job No.: 91.0363

Sample Description: DEC-SP1-4-1C
CHI28770.BO.SP; DuPont

Date Taken: 04/04/1991
Time Taken: 17:54

Date Received: 04/05/1991
Time Received: 09:50

BOD, Five Day	3.	mg/L
Chloride	30.	mg/L
COD, Total	<3.	mg/L
Fluoride	0.9	mg/L
N-Ammonia	0.31	mg/L
N-Nitrate	0.10	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	<1.	mg/L
pH	7.2	units
Solids, Total Dissolved	1160.	mg/L
Solids, Total Suspended	6.	mg/L
Sulfate	780.	mg/L
Arsenic, AA	0.045	mg/L
Copper, ICP	<0.050	mg/L
Zinc, ICP	0.460	mg/L

Kelly Jones

Kelly Jones
Project Manager



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ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Molholland
CH2M HILL
1890 Maple Av.
Suite 200
Evanston, IL 60016

04/26/1991

Sample No.: 130967

Job No.: 91.0526

Sample Description: DEC-SP1-4-2T
CHI28770.B0.SP; DuPont

Date Taken: 04/11/1991
Time Taken: 17:00

Date Received: 04/12/1991
Time Received: 09:45

BOD, Five Day	1.	mg/L
Chloride	30.	mg/L
COD, Total	<3.	mg/L
Fluoride	0.7	mg/L
N-Ammonia	0.26	mg/L
N-Nitrate	0.25	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	<1.	mg/L
pH	7.2	units
Solids, Total Dissolved	1260.	mg/L
Solids, Total Suspended	4.	mg/L
Sulfate	740.	mg/L
Arsenic, AA	0.0560	mg/L
Copper, ICP	<0.020	mg/L
Zinc, ICP	0.388	mg/L

Kelly Jones

Kelly Jones
Project Manager



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Avenue
Evanston, IL 60201

05/09/1991

Sample No.: 131461

Job No.: 91.0639

Sample Description: DEC-SP1-04-3T
CH128770.B0.SP; DuPont

Date Taken: 04/18/1991
Time Taken: 00:00

Date Received: 04/19/1991
Time Received: 09:40

BOD, Five Day	<1.	mg/L
Chloride	32.	mg/L
COD, Total	13.	mg/L
Fluoride	1.0	mg/L
N-Ammonia	0.39	mg/L
N-Nitrate	0.64	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	1.	mg/L
pH	7.2	units
Solids, Total Dissolved	1240.	mg/L
Solids, Total Suspended	8.	mg/L
Sulfate	810.	mg/L
Arsenic, ICP	0.045	mg/L
Copper, ICP	<0.010	mg/L
Zinc, ICP	1.26	mg/L

Kelly Jones

Kelly Jones
Project Manager



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ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Mulholland
CH2M HILL
1890 Maple Avenue
Evanston, IL 60201

05/09/1991

Sample No.: 131844

Job No.: 91.0784

Sample Description: DEC-SP1-4-4T; Comp.
CH28770.B0.SP; DuPont

Date Taken: 04/25/1991
Time Taken: 08:00

Date Received: 04/26/1991
Time Received: 09:30

BOD, Five Day	<1.	mg/L
Chloride	36.	mg/L
COD, Total	3.	mg/L
Fluoride	1.0	mg/L
N-Ammonia	0.42	mg/L
N-Nitrate	0.81	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	1.	mg/L
pH	7.3	units
Solids, Total Dissolved	1370.	mg/L
Solids, Total Suspended	3.	mg/L
Sulfate	790.	mg/L
Arsenic, ICP	0.052	mg/L
Copper, ICP	<0.010	mg/L
Zinc, ICP	1.03	mg/L

Kelly Jones

Kelly Jones
Project Manager

MEMORANDUM

CHM HILL

TO: Pixie Newman/CHI
Susan Mulholland/CHI

FROM: Dan MacGregor/GLO

DATE: May 8, 1991

SUBJECT: Data Validation for Seep Samples
Du Pont East Chicago, Indiana

PROJECT: CHI28770.B0.MR

INTRODUCTION

This memorandum presents the data validation discussion for the inorganic analytical results for samples collected on April 4, 11, 18 and 25, 1991, at the Du Pont plant in East Chicago, Indiana. Seep sampling was performed in compliance with the U.S. EPA-requested "monthly monitoring program."

Seep samples were analyzed for major ions and selected metals by NET Laboratories in Bartlett, Illinois. Sample collection and transport were performed under strict chain-of-custody procedures. Requested QA/QC data were limited to holding time data, chain-of-custody forms, calibration and procedure blank results, initial calibration verification and standard recoveries, continuing calibration recovery results, sample duplicate results, matrix spike and matrix spike duplicate results, and laboratory spike results. The QA/QC and sample data were reviewed as described below.

HOLDING TIMES

Inspection of holding times for the inorganic analyses showed that all holding times were met.

CHAIN OF CUSTODY

The chain of custody forms were reviewed for accuracy and completeness. All necessary information was provided and found to be accurate. All requested analyses were performed, and the data packages were complete.

BLANKS

The calibration and procedure blank results were inspected for possible contaminants. Most blanks were free of compound concentrations at levels equal to or greater than their reporting limits. The procedure blank for the April 4 sample data contained 130 ppm of total dissolved solids (TDS). The TDS concentration in the blank is approximately one-tenth the average sample concentration. The blank TDS concentration was determined to be insignificant in comparison to the sample concentrations, and thus the sample TDS results were not qualified. Oil and grease contamination at 2 ppm was found in the April 25 calibration blank, so all oil and grease results from that date were qualified as "B," blank contaminated. The procedure blank for the April 11 sample data contained low levels of copper. The April 11 sampling did not detect copper, so no qualifying action was required.

INITIAL CALIBRATION VERIFICATION AND STANDARD RECOVERIES

The initial calibration verification and standard recoveries were generally within control limits. Fluoride recoveries from the April 4 and 18 sampling were outside control limits. BOD recoveries from the April 4 and 25 samplings were below control limits. The sample results for these parameters for these sampling dates were qualified as "J," estimated.

CONTINUING CALIBRATION RECOVERIES

Continuing calibration recoveries were within control limits for all compounds except, fluoride from the April 18 sampling date. Fluoride recovery from that date was low, and so the fluoride result was qualified as "J."

LABORATORY SPIKES

The laboratory spike recoveries were below control limits for TDS (April 4) and oil and grease (April 18 and 25). The sample results for those parameters will be qualified as "J." All other laboratory spike recoveries were within control limits.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE FORTIFICATIONS

Generally the matrix spike and matrix spike duplicate results were within control limits. BOD and COD from the April 4 sampling were outside the control limits, as was arsenic from the April 18, and 25 sampling. Sample results for these parameters from these dates are qualified as estimated "J."

RESULTS

During the April 4 sampling event, duplicate composite samples (DEC-SP1-4-1T and DEC-FRSP1-4-1T) were taken along with individual grab samples taken at specified times during the day (DEC-SP1-4-1A at 9:41, DEC-SP-1-4-1B at 13:17, and DEC-SP1-4-IC at 17:54). The individual grab samples compared well among themselves for all parameters except COD. The COD level was high in the initial sample, and then was less than the reporting limit in the next two samples. COD concentrations can vary greatly from sampling period to sampling period. The COD values associated with the site are typically very low. At these levels organic matter on glassware or from the atmosphere can cause variability in the results. The duplicate composite sample results compared closely with the grab sample results. Excluding the variability of the COD results, the difference in results from the two sampling plans are analytically insignificant. The results from this month's sampling events were compared with previous seep results, and the sample results compared well. With the exception of previously noted qualifiers, the results were found to be complete and accurate.

CH²M HILL TRANSMITTAL

TO

E. I. DU PONT DE NEMOURS & CO. FROM
LEGAL DEPARTMENT
DU PONT BUILDING
Room 7007
WILMINGTON DE 19398

ATTN

RE

NORMAN GRIFFITHS

DATE _____

PROJECT
NUMBER

4/15/91

CHI 20770. B0. SP

WE ARE SENDING YOU

☒ ATTACHED

☐ UNDER SEPARATE COVER VIA

☐ SHOP DRAWINGS

☐ DOCUMENTS

☐ TRACINGS

☒ PRINTS

☐ SPECIFICATIONS

☐ CATALOGS

☐ COPY OF LETTER[illegible]

IF MATERIAL RECEIVED IS NOT AS LISTED, PLEASE NOTIFY US AT ONCE

REMARKS

REMARKS PLEASE REMOVE FIGURE 1 FROM THE
MARCH MONTHLY MONITORING REPORT AND
DISCARD. FIGURE 1, ^{ENCLOSED} SHOULD FOLLOW THE TEXT
OF THE ONE-TIME MONITORING REPORT. (PLACE BEH
COPY TO O.J. MEYER TABLE 1.

COPY TO

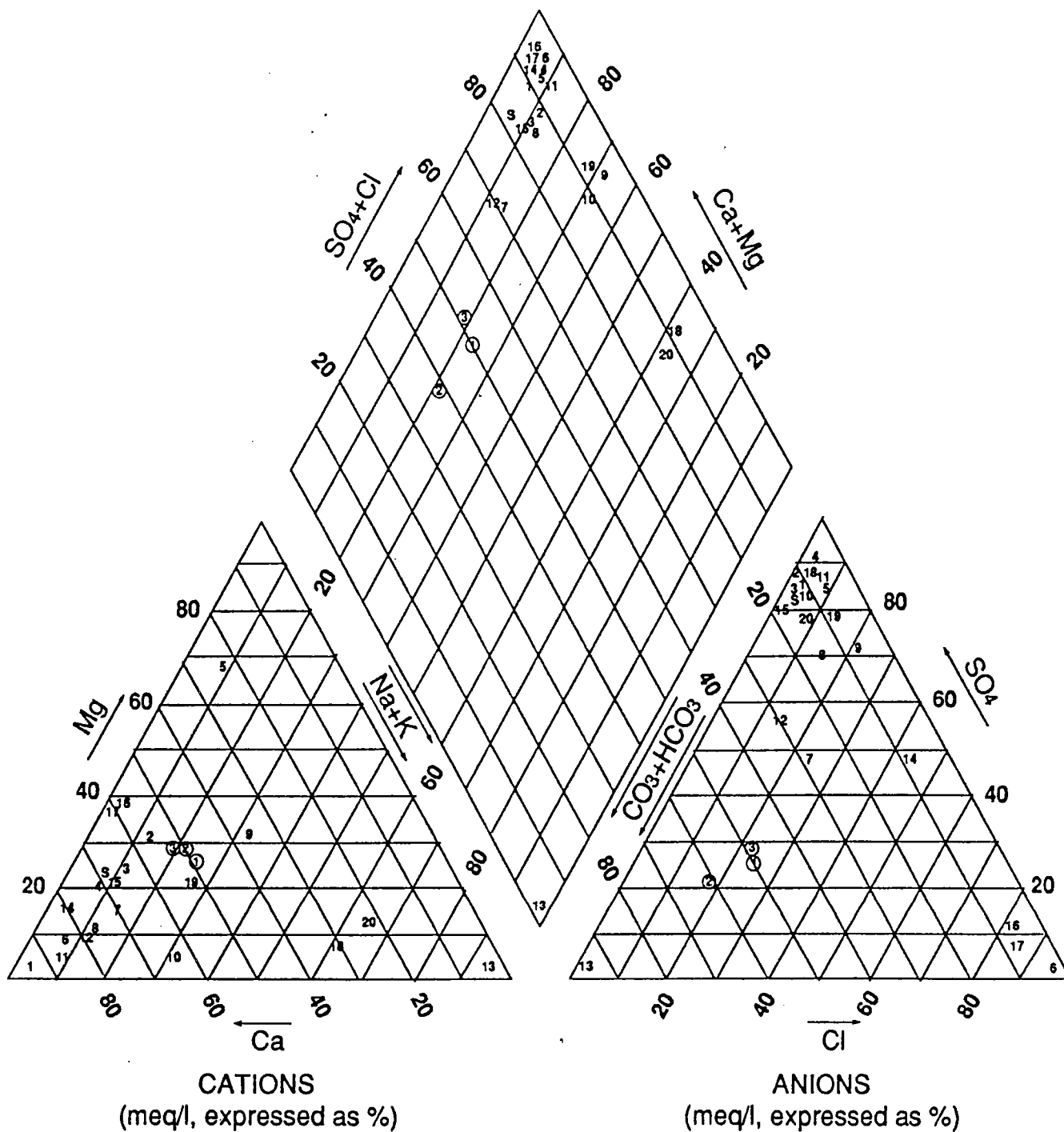
O. J. MEYER

TABLE 1.

LEGEND

- 5 MW-5 SAMPLE SEPT.1990
- ② SW-2 SAMPLE SEPT.1990
- S SEEP SAMPLE MAY1990

51500



PIPER DIAGRAM

GROUNDWATER, SURFACE WATER,
& SEEP ION BALANCE
DU PONT EAST CHICAGO PLANT

FIGURE 1

5400

SP-1

Batch Number(s) : 17989

Date Collected: 03/06/91

Date Received: 03/07/91

Lab Sample ID: 17989001

[illegible]

Comments:

一

SP-2

Batch Number(s) : 17989

Date Collected: 03/06/91

Date Received: 03/07/91

Lab Sample ID: 17989002

[illegible]

Comments:

TABLE 1

CONSTITUENTS DETECTED IN SEEP WATER
ONE-TIME MONITORING PROGRAM
MARCH 6, 1991

Sample ID:	SP-1	SP-1	SP-2	SP-2
Lab:	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Lab ID:	17988001/ 17989001	S17989001	17988002/ 17988003/ 17989002	S17989002
Filtered (Yes/No):	No	Yes	No	Yes
WATER QUALITY PARAMETERS (mg/l)				
COO	27	NA	47	NA
Chloride	47.9	NA	46.5	NA
Fats, Oils & Grease (FOG)	4.0	NA	1.0	NA
Fluoride	0.33	NA	0.33	NA
Nitrate/Nitrite		NA		NA
Nitrogen, Ammonia	0.47	NA	0.20	NA
Solids, Dissolved	1100	NA	1090	NA
Solids, Suspended	18	NA	45	NA
Sulfate	584	NA	540	NA
pH (field)	6	NA	6	NA
TRACE INORGANIC COMPOUNDS (ug/l)				
Arsenic	0.0663 J	0.0455	0.137 J	0.0429
Cadmium			0.0072	
Chromium, Total	0.0099 J		0.0296	0.0045 J
Copper	0.0076 J		0.017 J	0.0115 J
Lead	0.0212 J		0.0659 J	
Nickel			0.0105 J	
Selenium	0.00099 J			
Zinc	1.35	1.13	1.94	1.10

Notes:

J qualifier denotes estimated value.
NA denotes not analyzed.
No value denotes not detected.

Comments:

No volatile organic compounds detected.
No semivolatile organic (acid and base/neutral) compounds detected.
No pesticide/PCB compounds detected.
No asbestos detected.
No BOD-Five Day detected.
No cyanide detected.
No antimony, beryllium, mercury, silver, or thallium detected.
In addition, no lead, nickel, or selenium detected in filtered samples.


LEGAL
Wilmington, Delaware 19898

April 16, 1991

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Dale S. Bryson, Director (5WCC-TUB-8)
Water Division, USEPA, Region V
230 South Dearborn Street
Chicago, Ill 60604

Re: Submission of One-Time, Monthly Monitoring Rpts.
Du Pont East Chicago Plant - §308 Request

Dear Mr. Bryson:

Pursuant to the above referenced request for information, please find enclosed the sampling/analytical reports of the groundwater seep. We apologize for the delay in providing this data, but would hasten to add that the delay was caused by the intermittent nature of the seep that was the subject of the Request.

We would also advise you that two additional seeps have been discovered at the Site. These are some distance from the seep in question.

This work was performed by our engineering consulting firm, CH2MHill. Analytical work was performed by laboratories retained by them.

If you have questions about this data, please direct them to my office. My direct line is (302) 774-5403.

Very truly yours,



Norman D. Griffiths
Counsel
Environmental Law Group

cc: [REDACTED] t Manager (w/o encl.)

(2) Assistant Commissioner for Water Management
Indiana Department of Environmental Management
105 South Meridian Street
P. O. Box 6015
Indianapolis, Ind. 46206-6015

Attachment
East Chicago/11

bcc: N. Bell, Du Pont Chem., B-12252A (w/o encl.)
H. Frey, Du Pont Chem., (w/o encl.)
D. Heck, ENGR (w/o encl.)
S. Kline, DERS, Bellevue Office Bldg. (w/o encl.)



Engineers
Planners
Economists
Scientists

April 11, 1991

CHI28770.BO.SP

51500

Mr. Norman Griffiths
Attorney
E.I. Du Pont de Nemours & Company, Inc.
Legal Department
Du Pont Building, Room 7007
Wilmington, Delaware 19898

Dear Mr. Griffiths:

Subject: Section 308 Request for Information Submittals

At Du Pont's request, CH2M HILL has performed sampling and analysis of the groundwater seep at the Du Pont East Chicago Plant. The attached documents should be forwarded to U.S. EPA:

- One-Time Monitoring Report
- March Monthly Monitoring Report

These reports contain information specifically requested in U.S. EPA's letter to Du Pont dated February 13, 1991.

The analytical data presented herein are those provided by the laboratories performing the analyses.

Please call if you have any questions regarding these reports.

Sincerely,

CH2M HILL

A handwritten signature in cursive script, reading "Pixie A.B. Newman".

Pixie A.B. Newman, P.E., P.G.
Project Manager

clh/CHI120/056.51
Attachments (4)

**One-Time Monitoring Report
for the Groundwater Seep at the
Du Pont East Chicago Plant
East Chicago, Indiana**

Prepared by CH2M HILL
on behalf of
E.I. Du Pont de Nemours & Company

April 11, 1991

INTRODUCTION

In response to U.S. EPA's Section 308 Information Request dated February 13, 1991, Du Pont is submitting this report characterizing the quality of the groundwater seep at Du Pont's East Chicago Plant. This report contains the results of the "one-time monitoring program" specified in U.S. EPA's request.

SAMPLE COLLECTION AND ANALYSIS

As a direct result of actions taken by Du Pont to eliminate the seep, discharge was not occurring in mid- and late February (O.J. Meyer, Du Pont). U.S. EPA's request received on February 15, 1991, requesting Du Pont to implement a "one-time monitoring program" at the seep could not be honored. The seep reappeared on March 4, 1991 (Gene Hartstein, Du Pont). Upon discovery Du Pont asked CH2M HILL to implement the "one-time monitoring program." These sampling activities were performed on March 6, 1991. At the time of sampling, the flow rate of the seep was measured at 0.33 gallons per minute (gpm).

The "one-time monitoring program" consisted of collecting and analyzing two grab samples from the seep "for the Priority Pollutants (40 CFR 423, Appendix A, Numbers 001-013) using U.S. EPA methods 1624 and 1625, and for Priority Pollutants (40 CFR 423, Appendix A, Numbers 114-128) using U.S. EPA method 40 CFR 136,

Appendix C." In addition, an attempt was made "to identify and quantify the ten (10) largest, non-Priority Pollutant peaks on the reconstructed gas chromatogram (ion plots), excluding unsubstituted aliphatic hydrocarbons and any peaks less than 10 times higher than the adjacent background noise."

Because the U.S. EPA's request called for the analysis of total priority pollutant metal concentrations, unfiltered samples were collected and analyzed. To determine how much of the resulting concentrations could be attributed to the resuspension of fines and debris due to mud flat erosion or turbidity induced during sampling, portions of the samples were filtered and analyzed for the same inorganic constituents as the unfiltered samples. The filtered concentrations better represent the quality of seep discharge as it reaches the land surface.

The samples (SP-1 and SP-2) were preserved as necessary and shipped via overnight courier to CH2M HILL's analytical laboratory in Montgomery, Alabama. Selected analyses were subcontracted to Analytical Technologies, Inc. in Fort Collins, Colorado (volatiles and semivolatiles) and Reservoirs Environmental Services, Inc. in Denver, Colorado (asbestos).

To allow data users to compare these results with groundwater quality data generated during the Phase II Groundwater Assessment, an additional sample (SP-3) was collected and sent to National Environmental Testing, Inc. (NET) for analysis. Though not

specifically requested, these data are included for U.S. EPA review. This sample was preserved and shipped in a consistent manner.

ANALYTICAL RESULTS AND INTERPRETATION

Table 1 summarizes the analytical results of the "one-time monitoring program" for the seep. All laboratory data sheets for the field samples collected and analyzed are provided in Attachment 1. Attachment 2 contains a data validation summary of quality assurance/quality control (QA/QC) information associated with the analysis of the samples.

No volatile organics, semivolatile organics, pesticides, PCBs, asbestos, BOD-Five Day, cyanide, antimony, beryllium, mercury, silver, or thallium were detected in the grab samples. Only one peak was observed in the chromatograms when searching for non-priority pollutants at concentrations above background noise. The peak was a semivolatile organic constituent that could not be identified by the library search.

On March 6, 1991, seep water contained low COD and low levels of the nitrogen constituent in ammonia. Low to trace fats, oil and grease were detected. Trace inorganic priority pollutants detected in both of the filtered samples at concentrations above the method detection limits were:

- o Arsenic (at 0.043 to 0.046 mg/l);
- o Total Chromium (at 0.0045 mg/l);
- o Copper (estimated at 0.0115 mg/l); and
- o Zinc (at 1.10 to 1.13 mg/l).

None of the other priority pollutant inorganics (antimony, beryllium, cadmium, lead, mercury, nickel, selenium, silver, or thallium) were detected in the filtered samples.

The total dissolved solids concentrations (1090 and 1100 mg/l) of the samples are not comprised of priority pollutants. The seep sample is collected off the mud flat where sanitary wastes from the combined sewer system outfall are discharged during periods of overflow. Evidence of sanitary wastes and debris can be seen along the bank at the seep site. Given these conditions, this waste may be contributing to the concentrations observed. This contribution cannot be distinguished from that provided by the groundwater.

CONCLUSIONS

Based on the existing data and analytical results of the "one-time monitoring program," many of the constituents analyzed in the grab samples should be eliminated from future monitoring programs. These constituents include the following: volatile organics, semivolatile organics, pesticides, PCBs, asbestos, BOD-Five Day, cyanide, antimony, beryllium, chromium, copper, lead, mercury,

nickel, selenium, silver, and thallium.

Total dissolved solids observed are comprised primarily of cations and anions that are typically present in groundwater. Seep water quality is similar to that detected at monitoring wells installed near the seep (MW-3 and MW-15) as displayed in Figure 1.

**March Monthly Monitoring Report
for the Groundwater Seep at the
Du Pont East Chicago Plant
East Chicago, Indiana**

Prepared by CH2M HILL
on behalf of
E.I. Du Pont de Nemours & Company

April 11, 1991

INTRODUCTION

In response to U.S. EPA's Section 308 Information Request, Du Pont is submitting this monthly monitoring report characterizing the quality of the groundwater seep at Du Pont's East Chicago Plant. This report contains the results of the "monthly monitoring program" for March 1991 specified in U.S. EPA's request.

SAMPLE COLLECTION AND ANALYSIS

Samples of the groundwater seep were obtained March 15, 21, and 28, 1991. The flow rate of the seep varied between 0.26 and 0.52 gallons per minute (gpm) on March 15; between no flow and 0.03 gpm on March 21; and between 0.03 and 0.20 gpm on March 28.

The "monthly monitoring program" sampling activities typically consisted of obtaining an 8-hour composite sample of grab samples collected at 0-, 4-, and 8-hour intervals. Based on a conversation with Mr. Novak of U.S. EPA on March 20, 1991, the sampling program was modified to allow for filtering of samples prior to analysis. Filtering was implemented on March 21; however, sample fractions for fats, oil and grease and total suspended solids analyses were duplicated and the duplicates left unfiltered for analysis. On March 28, the sample fractions for fats, oil and grease, total suspended solids, and pH were collected but not filtered. All

other sample fractions were filtered. The March 28 protocol for filtering will be continued for the remainder of the "monthly monitoring program."

Also during that conversation, CH2M HILL and Du Pont came to believe that grab sampling instead of composite sampling was authorized. Clarification (indicating that only composite sampling was authorized) was received too late on March 21 to allow the sampling crew to collect a composite sample. Composite sampling was resumed on March 28.

After sample collection and preservation (as necessary), the sample is shipped via overnight courier to National Environmental Testing, Inc. (NET) analytical laboratory in Bartlett, Illinois. The sample is then analyzed for the following constituents specified in U.S. EPA's request: BOD-Five Day, COD, ammonia-N, nitrate and nitrite, sulfate, chloride, fluoride, oil and grease, total dissolved solids, total suspended solids, arsenic, copper, zinc, and pH. In addition, the seep flow rate is measured and recorded.

ANALYTICAL RESULTS AND INTERPRETATION

Table 1 summarizes the analytical results of the "monthly monitoring program" for the seep during the month of March. Attachment 1 provides laboratory data sheets for the seep samples

collected and analyzed during March for the "monthly monitoring program."

Attachment 2 contains a review of the quality assurance/quality control (QA/QC) associated with the analysis of the March seep samples.

Several of the constituents being monitored have concentrations periodically at or below method detection limits. This is true for BOD-Five Day, fat, oil and grease, and copper. If these conditions persist, these constituents should be dropped from the "monthly monitoring program."

CONCLUSIONS

The flow rate of the seep has varied from a very small rate, 0.52 gpm, to no flow. Although it was possible to collect samples during each of the sampling events, it is conceivable that weekly sampling events may be missed if the seep is not flowing during the scheduled sampling event.

The seep's flow rate varies significantly over time. In some instances, this variability has limited the ability to collect an 8-hour composite sample. Variations in seep flow rate are considerably greater than variations in seep water quality. Given

these conditons, it is recommended that the sampling program be switched from collection of an 8-hour composite to collection of a grab sample.

TABLE 1

CONSTITUENTS DETECTED IN SEEP WATER
MARCH MONTHLY MONITORING PROGRAM
MARCH 1991

Sample ID:	DEC-SP-03-01	DEC-SP-03-02	DEC-SP-03-03
Lab:	NET	NET	NET
Lab ID:	128851	129198/ (129354)	129745
Date:	3/15/91	3/21/91	3/28/91
Filtered (Yes/No):	No	Yes	Yes
AVERAGE FLOW RATE (gpm)	0.41	0.01	0.10
WATER QUALITY PARAMETERS (mg/l)			
BOD-Five Day			2 J
COD	72 J	36 J	7 J
Chloride	40	26	32
Fats, Oils & Grease (FOG)		/(1*)	1*
Fluoride	1.1	0.9	0.9
Nitrogen, Ammonia	0.37	0.42	0.42
Nitrogen, Nitrate	NA	0.04	0.07
Nitrogen, Nitrite	NA		
Nitrogen, Nitrate+Nitrite	1.37	NA	NA
Total Dissolved Solids	1020	934	1200
Total Suspended Solids	12	2 J/(54*)	32* J
Sulfate	590	570	733
pH (lab)	7.3 J	7.3	7.5*
TRACE INORGANIC COMPOUNDS (mg/l)			
Arsenic	0.0880	0.0970	0.0290
Copper			
Zinc	0.956 J	0.502 J	0.477 J

Notes:

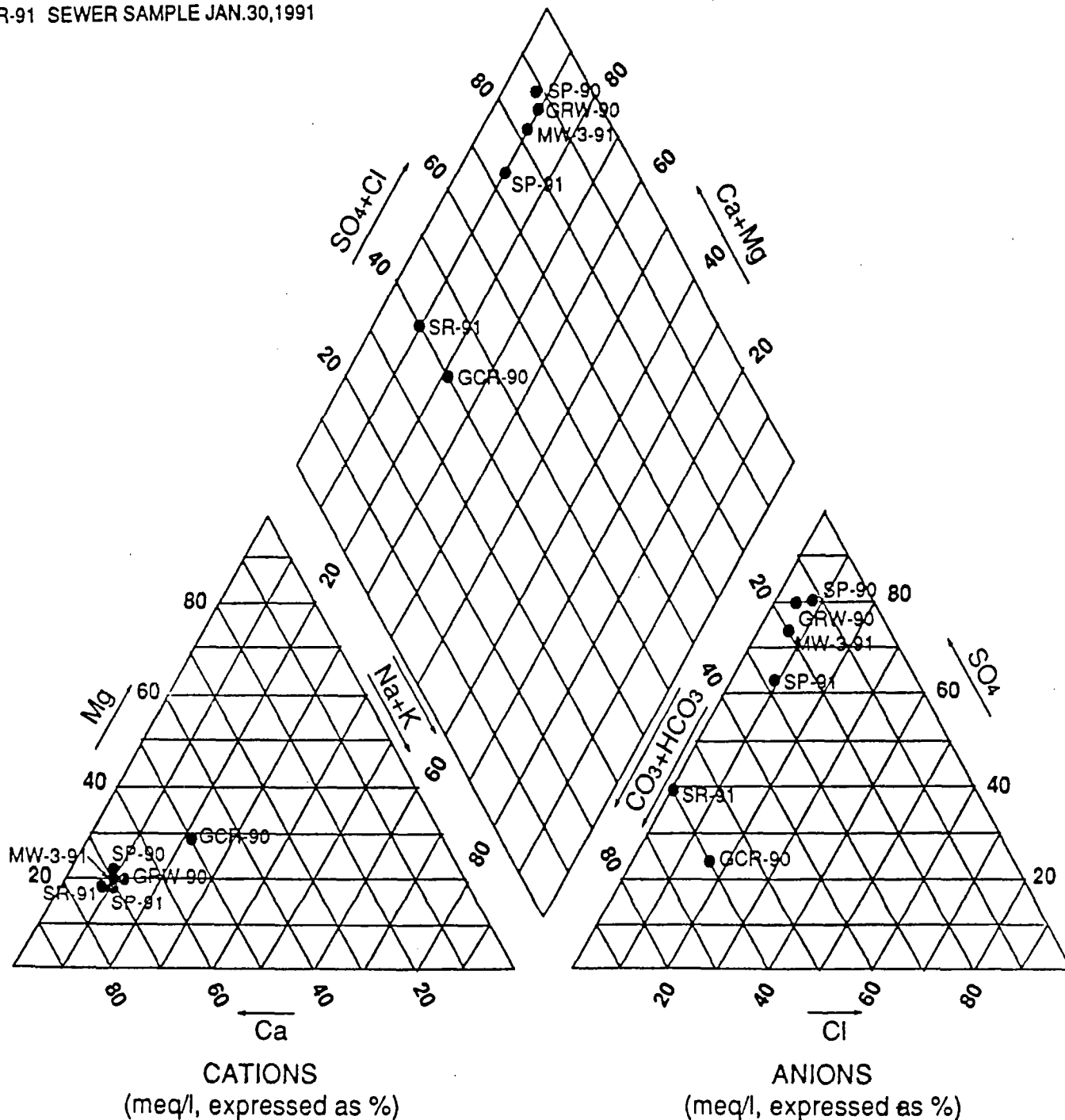
*Sample fraction not filtered.

NA denotes not analyzed.

No value denotes not detected.

LEGEND

SP-90 SEEP SAMPLE MAY 22-23,1990
 SP-91 SEEP SAMPLE JAN.23,1991
 MW-3-91 MONITORING WELL 3 SAMPLE JAN.23,1991
 GRW-90 AVERAGE GROUNDWATER QUALITY AT
 MW-3 AND MW-15 IN JUNE + SEPT.1990
 GCR-90 GEOMETRIC MEAN, SURFACE WATER QUALITY
 IN GRAND CALUMET RIVER JUNE + SEPT.1990
 SR-91 SEWER SAMPLE JAN.30,1991



PIPER DIAGRAM

FIGURE 1
 COMPARISON OF SEEP
 ION BALANCE TO ION BALANCE
 FOR OTHER WATER AT OR NEAR
 DU PONT EAST CHICAGO PLANT



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
85 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Dan MacGregor
CH2M HILL
310 West Wisconsin Ave
Suite 700 P.O. Box 2090
Milwaukee WI 53201

04-01-91

Sample No.: 128851

Sample Description DEC-SP-01; Composite
Project No. CHI28770.BO.SP; DuPont East Chicago(SEEP)

Date Taken: 03-15-91

Date Received: 03-18-91 0800

*BOD - Five Day	<1.	mg/L
Chloride	40.	mg/L
COD	72.	mg/L
Fluoride	1.1	mg/L
Fats, Oils & Grease (FOG)	<1.	mg/L
Nitrogen, Ammonia	0.37	mg/L
Nitrogen, Nitrate+Nitrite	1.37	mg/L
*pH	7.3	units
*Solids, Dissolved	1020.	mg/L
Solids, Suspended	12.	mg/L
Sulfate	590.	mg/L
Arsenic	0.0880	mg/L
Copper	<0.01	mg/L
Zinc	0.956	mg/L

*Received past holding time.

Kelly Jones

Kelly Jones
Project Manager



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
85 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Pixie Newman
CH2M HILL
1890 Maple
Suite 200
Evanston, IL 60201

04/11/1991

Sample No.: 129198

Job No.: 91.0085

Sample Description: DEC-SP-2; Grab Liquid
DuPont East Chicago

Date Taken: 03/21/1991
Time Taken: 10:44

Date Received: 03/22/1991
Time Received: 09:55

BOD, Five Day	<1.	mg/L
Chloride	26.	mg/L
COD, Total	36.	mg/L
Fluoride	0.9	mg/L
N-Ammonia	0.42	mg/L
N-Nitrate	0.04	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	<1.	mg/L
pH	7.3	units
Solids, Total Dissolved	934.	mg/L
Solids, Total Suspended	2.	mg/L
Sulfate	570.	mg/L
Arsenic	0.0970	mg/L
Copper	0.005	mg/L

Kelly Jones
Kelly Jones
Project Manager



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
856 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Pixie Newman
CH2M HILL
1890 Maple
Suite 200
Evanston, IL 60201

04/11/1991

Sample No.: 129198

Job No.: 91.0085

Sample Description: DEC-SP-2; Grab Liquid
DuPont East Chicago

Date Taken: 03/21/1991
Time Taken: 10:44

Date Received: 03/22/1991
Time Received: 09:55

Zinc

0.502

mg/L

Kelly Jones

Kelly Jones
Project Manager



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Pixie Newman
CH2M HILL
1890 Maple
Suite 200
Evanston, IL 60201

04/03/1991

Sample No.: 129354

Sample Description: DEC-SP-2; Grab Liquid
DuPont East Chicago

Date Taken: 03/21/1991
Time Taken: 10:44

Date Received: 03/22/1991
Time Received: 09:55

Oil & Grease

1. mg/L

Solids, Total Suspended

54. mg/L

Kelly Jones
Kelly Jones
Project Manager



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Pixie Newman
CH2M HILL
1890 Maple Avenue
Suite 200
Evanston, IL 60201

04/10/1991

Sample No.: 129745

91.0236

Sample Description: DEC-SP-03-03
CHI28770.B0.SP; DuPont

Date Taken: 03/28/1991
Time Taken:

Date Received: *3/29/91 dab*
~~04/01/1991~~
Time Received: 09:18

BOD, Five Day	2.	mg/L
Chloride	32.	mg/L
COD, Total	7.	mg/L
Fluoride	0.9	mg/L
N-Ammonia	0.42	mg/L
N-Nitrate	0.07	mg/L
N-Nitrite	<0.01	mg/L
Oil & Grease	1.	mg/L
pH	7.5	units
Solids, Total Dissolved	1200.	mg/L
Solids, Total Suspended	32.	mg/L
Sulfate	733.	mg/L
Arsenic	0.0290	mg/L
Copper	<0.050	mg/L
Zinc	0.477	mg/L

Kelly Jones

Kelly Jones
Project Manager

MEMORANDUM

CH2M HILL

TO: Pixie Newman/CH2M HILL
John Fleissner/CH2M HILL

FROM: Dan MacGregor/CH2M HILL

DATE: April 11, 1991

SUBJECT: Data validation for Du Pont-East Chicago, Indiana seep samples.

PROJECT: CHI28770.B0.SP

INTRODUCTION

This memorandum presents the data validation discussion for the inorganic analytical results for samples collected on March 15, 21, and 28, 1991 at the Du Pont plant in East Chicago, Indiana. This seep sampling was done in compliance with the U.S. EPA requested "monthly monitoring program."

These seep samples were analyzed for major ions and selected metals by NET laboratories in Bartlett, Illinois. Sampling and transporting of these samples were performed under strict chain-of-custody procedures. Requested QA/QC data were limited to holding time data, chain of custody forms, calibration and procedure blank results, continuing calibration recovery results, sample duplicate results, matrix spike and matrix spike duplicate (MS/MSD) results, and laboratory spike results. The QA/QC and sample data were reviewed as described below.

HOLDING TIMES

The holding times for these inorganic analyses were inspected. All holding times were met, except for BOD and pH from the March 15th sampling and BOD from the March 28th sampling. The results for these analyses will be qualified as estimated "J".

CHAIN OF CUSTODY

The chain of custody forms were reviewed for accuracy and completeness. All necessary information was provided and was found to be accurate. All requested analyses were performed and the data packages were complete.

BLANKS

The calibration and procedure blank results were inspected for possible contaminants. The majority of blanks were free of compound concentrations at levels equal to or greater than their reporting limits. The procedure blank for the March 21st and 28th sample data contained low levels of copper. As a result, copper from the March 21st sampling was changed to <0.005 ppm, and the March 28th result did not contain copper, thus no qualifying action was required. Low levels of zinc were found in all procedure blanks, all zinc results were consequently qualified as estimated "J".

CONTINUING CALIBRATION RECOVERIES

Continuing calibration recoveries were within control limits for all compounds except, COD from the March 15th and 21st analyses, and total suspended solids from the March 21st and 28th analyses. The sample results for these parameters for these sampling dates will be qualified as estimated "J".

LABORATORY SPIKES

All laboratory spike recoveries were within control limits.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE FORTIFICATIONS

All matrix spike and matrix spike duplicate results were within control limits.

RESULTS

The results from these sampling events were compared with each other and with previous seep results. The majority of compound concentrations compared well. COD appears to be decreasing with time. With the exception of previously noted qualifiers, the results were found to be complete and accurate.

STATIONERY ORDER FORM

TO: **GINA M. SMITH**
LEGAL - D7151

FROM:

PHONE :

LOCATION:

Please **circle** one:

PICK-UP

DELIVER

[illegible]

TABLE 1

CONSTITUENTS DETECTED IN SEEP WATER
ONE-TIME MONITORING PROGRAM
MARCH 6, 1991

Sample ID:	SP-1	SP-1	SP-2	SP-2
Lab:	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Lab ID:	17988001/ 17989001	S17989001	17988002/ 17988003/ 17989002	S17989002
Filtered (Yes/No):	No	Yes	No	Yes
WATER QUALITY PARAMETERS (mg/l)				
COO	27	NA	47	NA
Chloride	47.9	NA	46.5	NA
Fats, Oils & Grease (FOG)	4.0	NA	1.0	NA
Fluoride	0.33	NA	0.33	NA
Nitrate/Nitrite		NA		NA
Nitrogen, Ammonia	0.47	NA	0.20	NA
Solids, Dissolved	1100	NA	1090	NA
Solids, Suspended	18	NA	45	NA
Sulfate	584	NA	540	NA
pH (field)	6	NA	6	NA
TRACE INORGANIC COMPOUNDS (ug/l)				
Arsenic	0.0663 J	SEM 4/11/91 0.0455	0.137 J	SEM 4/11/91 0.0429
Cadmium			0.0072	
Chromium, Total	0.0099 J		0.0296	0.0045 J
Copper	0.0076 J		0.017 J	0.0115 J
Lead	0.0212 J		0.0659 J	
Nickel			0.0105 J	
Selenium	0.00099 J			
Zinc	1.35	1.13	1.94	1.10

Notes:

J qualifier denotes estimated value.

NA denotes not analyzed.

No value denotes not detected.

Comments:

No volatile organic compounds detected.

No semivolatile organic (acid and base/neutral) compounds detected.

No pesticide/PCB compounds detected.

No asbestos detected.

No BOD-Five Day detected.

No cyanide detected.

No antimony, beryllium, mercury, silver, or thallium detected.

In addition, no lead, nickel, or selenium detected in filtered samples.

INORGANIC ANALYSES DATA SHEET

SP-1

Lab Name: CH2M_HILL_MGM_____ Contract: 17989_____

Lab Code: NA_____ Case No.: 17989 SAS No.: 17989_ SDG No.: 17989_

Matrix (soil/water): WATER Lab Sample ID: 17989001_

Level (low/med): LOW_ Date Received: 03/07/91

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum		-		NR
7440-36-0	Antimony	53.3	U		P
7440-38-2	Arsenic	66.3	-	N	F
7440-39-3	Barium		-		NR
7440-41-7	Beryllium	0.13	U		P
7440-43-9	Cadmium	3.7	U		P
7440-70-2	Calcium		-		NR
7440-47-3	Chromium	9.9	B		P
7440-48-4	Cobalt		-		NR
7440-50-8	Copper	7.6	B		P
7439-89-6	Iron		-		NR
7439-92-1	Lead	21.2	-	*	F
7439-95-4	Magnesium		-		NR
7439-96-5	Manganese		-		NR
7439-97-6	Mercury	0.080	U		CV
7440-02-0	Nickel	8.6	U		P
7440-09-7	Potassium		-		NR
7782-49-2	Selenium	0.99	B	W	F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium		-		NR
7440-28-0	Thallium	1.5	U		F
7440-62-2	Vanadium		-		NR
7440-66-6	Zinc	1350	-		P
	Cyanide	3.6	U		CN

Color Before: CLEAR_____ Clarity Before: CLEAR_____ Texture: N/A_____

Color After: CLEAR_____ Clarity After: CLEAR_____ Artifacts: _____

000003

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SP-1SOL

Lab Name: CH2M_HILL_MGM_____ Contract: 17989_____

Lab Code: NA_____ Case No.: 17989 SAS No.: 17989_ SDG No.: 17989_

Matrix (soil/water): WATER

Lab Sample ID: S17989001_

Level (low/med): LOW_

Date Received: 03/07/91

% Solids: ____0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum		-		NR
7440-36-0	Antimony	53.3	U		P
7440-38-2	Arsenic	45.5	-		F
7440-39-3	Barium		-		NR
7440-41-7	Beryllium	0.13	U		P
7440-43-9	Cadmium	3.7	U		P
7440-70-2	Calcium		-		NR
7440-47-3	Chromium	2.6	U		P
7440-48-4	Cobalt		-		NR
7440-50-8	Copper	2.2	U		P
7439-89-6	Iron		-		NR
7439-92-1	Lead	1.3	U		F
7439-95-4	Magnesium		-		NR
7439-96-5	Manganese		-		NR
7439-97-6	Mercury	0.080	U		CV
7440-02-0	Nickel	8.6	U		P
7440-09-7	Potassium		-		NR
7782-49-2	Selenium	0.90	U		F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium		-		NR
7440-28-0	Thallium	1.5	U		F
7440-62-2	Vanadium		-		NR
7440-66-6	Zinc	1130	-		P
	Cyanide		-		NR

Color Before: CLEAR_____ Clarity Before: CLEAR_____ Texture: N/A_____

Color After: CLEAR_____ Clarity After: CLEAR_____ Artifacts: _____

Comments:

THESE DATA ARE FOR SOLUBLE ANALYTES. _____

INORGANIC ANALYSES DATA SHEET

SP-2

Lab Name: CH2M_HILL_MGM_____ Contract: 17989_____

Lab Code: NA_____ Case No.: 17989 SAS No.: 17989_ SDG No.: 17989_

Matrix (soil/water): WATER Lab Sample ID: 17989002_

Level (low/med): LOW_ Date Received: 03/07/91

% Solids: _____0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum		—		NR
7440-36-0	Antimony	53.3	U		P_
7440-38-2	Arsenic	137	—	N	F_
7440-39-3	Barium		—		NR
7440-41-7	Beryllium	0.13	U		P_
7440-43-9	Cadmium	7.2	—		P_
7440-70-2	Calcium		—		NR
7440-47-3	Chromium	29.6	—		P_
7440-48-4	Cobalt		—		NR
7440-50-8	Copper	17.0	B		P_
7439-89-6	Iron		—		NR
7439-92-1	Lead	65.9	—	*	F_
7439-95-4	Magnesium		—		NR
7439-96-5	Manganese		—		NR
7439-97-6	Mercury	0.080	U		CV
7440-02-0	Nickel	10.5	B		P_
7440-09-7	Potassium		—		NR
7782-49-2	Selenium	0.90	U		F_
7440-22-4	Silver	4.0	U		P_
7440-23-5	Sodium		—		NR
7440-28-0	Thallium	1.5	U		F_
7440-62-2	Vanadium		—		NR
7440-66-6	Zinc	1940	—		P_
	Cyanide	3.6	U		CN

Color Before: CLEAR_____ Clarity Before: CLEAR_____ Texture: N/A_____

Color After: CLEAR_____ Clarity After: CLEAR_____ Artifacts: _____

Comments:

INORGANIC ANALYSES DATA SHEET

SP-2SOL

Lab Name: CH2M_HILL_MGM_____ Contract: 17989_____

Lab Code: NA_____ Case No.: 17989 SAS No.: 17989_ SDG No.: 17989_

Matrix (soil/water): WATER

Lab Sample ID: S17989002_

Level (low/med): LOW__

Date Received: 03/07/91

% Solids: _____0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum		—		NR
7440-36-0	Antimony	53.3	U		P_
7440-38-2	Arsenic	42.9	—		F_
7440-39-3	Barium		—		NR
7440-41-7	Beryllium	0.13	U		P_
7440-43-9	Cadmium	3.7	U		P_
7440-70-2	Calcium		—		NR
7440-47-3	Chromium	4.5	B		P_
7440-48-4	Cobalt		—		NR
7440-50-8	Copper	11.5	B		P_
7439-89-6	Iron		—		NR
7439-92-1	Lead	2.6	U		F_
7439-95-4	Magnesium		—		NR
7439-96-5	Manganese		—		NR
7439-97-6	Mercury	0.080	U		CV
7440-02-0	Nickel	8.6	U		P_
7440-09-7	Potassium		—		NR
7782-49-2	Selenium	0.90	U		F_
7440-22-4	Silver	4.0	U		P_
7440-23-5	Sodium		—		NR
7440-28-0	Thallium	1.5	U		F_
7440-62-2	Vanadium		—		NR
7440-66-6	Zinc	1100	—		P_
	Cyanide		—		NR

Color Before: CLEAR_____ Clarity Before: CLEAR_____ Texture: N/A_____

Color After: CLEAR_____ Clarity After: CLEAR_____ Artifacts: _____

Comments:

THESE DATA ARE FOR SOLUBLE ANALYTES. _____

Client Sample Number

Lab Name: CH2M HILL LABORATORIES

Batch Number(s): 17989

Matrix (soil/water): WATER

Date Collected: 03/06/91

* Solids (if soil): N/A

Date Received: 03/07/91

Lab Sample ID: 17989002

Comments: Error in reporting per phone conversation w/ Mary Wisdom
of CH2M HILL LABORATORIES on 4/11/91.



REPORT OF ANALYTICAL RESULTS

Date: 03/19/91

Client: CH2M HILL/CHI
1890 MAPLE AVENUE SUITE 200
EVANSTON, IL 60201

Project Number: CHI28770.B0.SP
DUPONT EAST CHICAGO
Laboratory Number: 17988
Date Received: 03/07/91

Atten: MS. PIXIE NEWMAN

Sample Description: SP-1

Laboratory Sample Number: 17988001 Date Collected: 03/06/91 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Asbestos	EPA600/M4/82-020	2.34 *	<2.34 *	s/l	03/09/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: * = Results are times ten to the 6th power. s/l = Structures per liter.

Reviewed by: 

INRPRPT(v910124)



Engineers
Planners
Economists
Scientists

REPORT OF ANALYTICAL RESULTS

Date: 03/19/91

Client: CH2M HILL/CHI
1890 MAPLE AVENUE SUITE 200
EVANSTON, IL 60201

Project Number: CHI28770.B0.SP
DUPONT EAST CHICAGO
Laboratory Number: 17988
Date Received: 03/07/91

Atten: MS. PIXIE NEWMAN

Sample Description: SP-2 NET

Laboratory Sample Number: 17988003

Date Collected: 03/06/91

Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Asbestos	EPA600/M4/82-020	2.09 *	<2.09 *	s/l	03/09/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: * = Results are times ten to the 6th
power. s/l = Structures per liter.

Reviewed by: 

INRPRPT(v910124)

000002



VOLATILE ORGANICS ANALYSIS DATA SHEET
Method 1624

Client Name: CH2M Hill

Client Project ID: #17988

Matrix (soil/water): Water

Client Sample ID: 17988001

Sample wt/vol: 5.0 mL

Lab Sample ID: 91-03-034-01

Level (low/med): Low

Date Received: 03/08/91

% Moisture: not dec. N/A

Date Analyzed: 03/13/91

Column: (pack/cap) PACK

Dilution Factor: 1

		CONCENTRATION UNITS
		(ug/L or ug/kg): ug/L
CAS NO.	COMPOUND	
74-87-3	Chloromethane	< 50
74-83-9	Bromomethane	< 50
75-01-4	Vinyl chloride	< 10
75-00-3	Chloroethane	< 50
75-09-2	Methylene chloride	< 10
67-64-1	Acetone	< 50
107-02-8	Acrolein	< 50
107-13-1	Acrylonitrile	< 50
75-35-4	1,1-Dichloroethene	< 10
75-34-3	1,1-Dichloroethane	< 10
156-60-5	trans-1,2-Dichloroethene	< 10
60-29-7	Diethyl ether	< 50
67-66-3	Chloroform	< 10
78-93-3	2-Butanone	< 50
107-06-2	1,2-Dichloroethane	< 10
71-55-6	1,1,1-Trichloroethane	< 10
56-23-5	Carbon tetrachloride	< 10
75-27-4	Bromodichloromethane	< 10
78-87-5	1,2-Dichloropropane	< 10
10061-02-6	trans-1,3-Dichloropropene	< 10
79-01-6	Trichloroethene	< 10
71-43-2	Benzene	< 10
124-48-1	Dibromochloromethane	< 10
79-00-5	1,1,2-Trichloroethane	< 10
110-78-5	2-Chloroethyl vinyl ether	< 10
75-25-2	Bromoform	< 10
123-91-1	p-Dioxane	< 100
79-34-5	1,1,2,2-Tetrachloroethane	< 10
127-18-4	Tetrachloroethene	< 10
108-88-3	Toluene	< 10
108-90-7	Chlorobenzene	< 10
100-41-4	Ethylbenzene	< 10

No TIC's found.

000015



VOLATILE ORGANICS ANALYSIS DATA SHEET
Method 1624

Client Name: CH2M Hill

Client Project ID: #17988

Matrix (soil/water): Water

Client Sample ID: 17988003

Sample wt/vol: 5.0 mL

Lab Sample ID: 91-03-034-02

Level (low/med): Low

Date Received: 03/08/91

% Moisture: not dec. N/A

Date Analyzed: 03/13/91

Column: (pack/cap) PACK

Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/kg): ug/L
74-87-3	Chloromethane	< 50
74-83-9	Bromomethane	< 50
75-01-4	Vinyl chloride	< 10
75-00-3	Chloroethane	< 50
75-09-2	Methylene chloride	< 10
67-64-1	Acetone	< 50
107-02-8	Acrolein	< 50
107-13-1	Acrylonitrile	< 50
75-35-4	1,1-Dichloroethene	< 10
75-34-3	1,1-Dichloroethane	< 10
156-60-5	trans-1,2-Dichloroethene	< 10
60-29-7	Diethyl ether	< 50
67-66-3	Chloroform	< 10
78-93-3	2-Butanone	< 50
107-06-2	1,2-Dichloroethane	< 10
71-55-6	1,1,1-Trichloroethane	< 10
56-23-5	Carbon tetrachloride	< 10
75-27-4	Bromodichloromethane	< 10
78-87-5	1,2-Dichloropropane	< 10
10061-02-6	trans-1,3-Dichloropropene	< 10
79-01-6	Trichloroethene	< 10
71-43-2	Benzene	< 10
124-48-1	Dibromochloromethane	< 10
79-00-5	1,1,2-Trichloroethane	< 10
110-78-5	2-Chloroethyl vinyl ether	< 10
75-25-2	Bromoform	< 10
123-91-1	p-Dioxane	< 100
79-34-5	1,1,2,2-Tetrachloroethane	< 10
127-18-4	Tetrachloroethene	< 10
108-88-3	Toluene	< 10
108-90-7	Chlorobenzene	< 10
100-41-4	Ethylbenzene	< 10

No TIC's found.

000014



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
Method 1625

Client Name: CH2M Hill

Client Project ID: #17988

Matrix (soil/water): Water

Client Sample ID: 17988001

Sample wt/vol: 1000 ml

Lab Sample ID: 91-03-034-01

Final Extract vol: 1.0 ml

Date Received: 03/08/91

Level (low/med): Low

Date Analyzed: 03/15/91

Column: (pack/cap) Pack

Dilution Factor: 1

Fraction: Acid/Base

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/kg): <u>ug/L</u>
62-75-9	N-Nitrosodimethylamine	< 50
109-06-8	alpha-Picoline	< 50
100-42-5	Styrene	< 10
111-44-4	bis(2-Chloroethyl) ether	< 10
108-95-2	Phenol	< 10
95-57-8	2-Chlorophenol	< 10
124-18-5	n-C10 Decane	< 10
541-73-1	1,3-Dichlorobenzene	< 10
106-46-7	1,4-Dichlorobenzene	< 10
99-87-6	p-Cymene	< 10
95-50-1	1,2-Dichlorobenzene	< 10
108-60-1	bis(2-Chloroisopropyl) ether	< 10
621-64-7	N-Nitrosodi-n-propylamine	< 20
67-72-1	Hexachloroethane	< 10
98-95-3	Nitrobenzene	< 10
78-59-1	Isophorone	< 10
88-75-5	2-Nitrophenol	< 20
105-67-9	2,4-Dimethylphenol	< 10
120-83-2	2,4-Dichlorophenol	< 10
120-82-1	1,2,4-Trichlorobenzene	< 10
91-20-3	Naphthalene	< 10

00002



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
Method 1625

CONCENTRATION UNITS
(ug/L or ug/kg): ug/L

CAS NO.

COMPOUND

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/kg): <u>ug/L</u>
98-55-5	alpha-Terpineol	< 10
112-40-3	n-C12 Dodecane	< 10
87-61-6	1,2,3-Trichlorobenzene	< 10
87-68-3	Hexachlorobutadiene	< 10
59-50-7	4-Chloro-3-methylphenol	< 10
77-47-4	Hexachlorocyclopentadiene	< 10
88-06-2	2,4,6-Trichlorophenol	< 10
95-95-4	2,4,5-Trichlorophenol	< 10
91-58-7	2-Chloronaphthalene	< 10
92-52-4	Biphenyl	< 10
933-75-5	2,3,6-Trichlorophenol	< 10
629-59-4	n-C14 Tetradecane	< 10
101-84-8	Diphenyl ether	< 10
131-11-3	Dimethyl phthalate	< 10
208-96-8	Acenaphthylene	< 10
606-20-2	2,6-Dinitrotoluene	< 10
83-32-9	Acenaphthene	< 10
51-28-5	2,4-Dinitrophenol	< 50
132-64-9	Dibenzofuran	< 10
100-02-7	4-Nitrophenol	< 50
121-14-2	2,4-Dinitrotoluene	< 10
91-59-8	beta-Naphthylamine	< 50
86-73-7	Fluorene	< 10
544-76-3	n-C16 Hexadecane	< 10
84-66-2	Diethyl phthalate	< 10
7005-72-3	4-Chlorophenyl phenyl ether	< 10
534-52-1	2-Methyl-4,6-dinitrophenol	< 20
122-39-4	Diphenylamine	< 20
86-30-6	N-Nitrosodiphenylamine	< 20
122-66-7	1,2-Diphenylhydrazine	< 20
101-55-3	4-Bromophenylphenyl ether	< 20
118-74-1	Hexachlorobenzene	< 10

000023



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
Method 1625

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/kg)ug/L
87-86-5-----	Pentachlorophenol	< 10
132-65-0-----	Dibenzothiophene	< 10
593-45-3-----	n-C18 Octadecane	< 10
120-12-7-----	Anthracene	< 20
86-74-8-----	Carbazole	< 10
84-74-2-----	Di-n-butyl phthalate	< 10
112-95-8-----	n-C20 Eicosane	< 10
206-44-0-----	Fluoranthene	< 10
92-87-5-----	Benzidine	< 50
129-00-0-----	Pyrene	< 10
629-97-0-----	n-C22 Docosane	< 10
85-68-7-----	Butylbenzyl phthalate	< 10
646-31-1-----	n-C24 Tetracosane	< 10
56-55-3-----	Benzo(a)anthracene	< 10
91-94-1-----	3,3-Dichlorobenzidine	< 50
218-01-9-----	Chrysene	< 10
117-81-7-----	bis(2-Ethylhexyl)phthalate	< 10
630-01-3-----	n-C26 Hexacosane	< 10
117-84-0-----	Di-n-octyl phthalate	< 10
630-02-4-----	n-C28 Octacosane	< 10
205-99-2-----	Benzo(b)fluoranthene	< 10
207-08-9-----	Benzo(k)fluoranthene	< 10
50-32-8-----	Benzo(a)pyrene	< 10
638-68-6-----	n-C30 Triacontane	< 10
193-39-5-----	Indeno(1,2,3-cd)pyrene	< 20
53-70-3-----	Dibenzo(a,h)anthracene	< 20
191-24-2-----	Benzo(g,h,i)perylene	< 20

No TIC's found.

000024



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
Method 1625

Client Name: CH2M Hill

Client Project ID: #17988

Matrix (soil/water): Water

Client Sample ID: 17988003

Sample wt/vol: 1000 ml

Lab Sample ID: 91-03-034-02

Final Extract vol: 1.0 ml

Date Received: N/A

Level (low/med): Low

Date Analyzed: 03/15/91

Column: (pack/cap) Pack

Dilution Factor: 1

Fraction: Acid/Base

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/kg): <u>ug/L</u>
62-75-9	N-Nitrosodimethylamine	< 50
109-06-8	alpha-Picoline	< 50
100-42-5	Styrene	< 10
111-44-4	bis(2-Chloroethyl)ether	< 10
108-95-2	Phenol	< 10
95-57-8	2-Chlorophenol	< 10
124-18-5	n-C10 Decane	< 10
541-73-1	1,3-Dichlorobenzene	< 10
106-46-7	1,4-Dichlorobenzene	< 10
99-87-6	p-Cymene	< 10
95-50-1	1,2-Dichlorobenzene	< 10
108-60-1	bis(2-Chloroisopropyl)ether	< 10
621-64-7	N-Nitrosodi-n-propylamine	< 20
67-72-1	Hexachloroethane	< 10
98-95-3	Nitrobenzene	< 10
78-59-1	Isophorone	< 10
88-75-5	2-Nitrophenol	< 20
105-67-9	2,4-Dimethylphenol	< 10
120-83-2	2,4-Dichlorophenol	< 10
120-82-1	1,2,4-Trichlorobenzene	< 10
91-20-3	Naphthalene	< 10



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
Method 1625

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/kg) : <u>ug/L</u>
98-55-5	alpha-Terpineol	< 10
112-40-3	n-C12 Dodecane	< 10
87-61-6	1,2,3-Trichlorobenzene	< 10
87-68-3	Hexachlorobutadiene	< 10
59-50-7	4-Chloro-3-methylphenol	< 10
77-47-4	Hexachlorocyclopentadiene	< 10
88-06-2	2,4,6-Trichlorophenol	< 10
95-95-4	2,4,5-Trichlorophenol	< 10
91-58-7	2-Chloronaphthalene	< 10
92-52-4	Biphenyl	< 10
933-75-5	2,3,6-Trichlorophenol	< 10
629-59-4	n-C14 Tetradecane	< 10
101-84-8	Diphenyl ether	< 10
131-11-3	Dimethyl phthalate	< 10
208-96-8	Acenaphthylene	< 10
606-20-2	2,6-Dinitrotoluene	< 10
83-32-9	Acenaphthene	< 10
51-28-5	2,4-Dinitrophenol	< 50
132-64-9	Dibenzofuran	< 10
100-02-7	4-Nitrophenol	< 50
121-14-2	2,4-Dinitrotoluene	< 10
91-59-8	beta-Naphthylamine	< 50
86-73-7	Fluorene	< 10
544-76-3	n-C16 Hexadecane	< 10
84-66-2	Diethyl phthalate	< 10
7005-72-3	4-Chlorophenyl phenyl ether	< 10
534-52-1	2-Methyl-4,6-dinitrophenol	< 20
122-39-4	Diphenylamine	< 20
86-30-6	N-Nitrosodiphenylamine	< 20
122-66-7	1,2-Diphenylhydrazine	< 20
101-55-3	4-Bromophenylphenyl ether	< 20
118-74-1	Hexachlorobenzene	< 10

000026



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
Method 1625

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/kg)ug/L
87-86-5-----	Pentachlorophenol	< 10
132-65-0-----	Dibenzothiophene	< 10
593-45-3-----	n-C18 Octadecane	< 10
120-12-7-----	Anthracene	< 20
86-74-8-----	Carbazole	< 10
84-74-2-----	Di-n-butyl phthalate	< 10
112-95-8-----	n-C20 Eicosane	< 10
206-44-0-----	Fluoranthene	< 10
92-87-5-----	Benzidine	< 50
129-00-0-----	Pyrene	< 10
629-97-0-----	n-C22 Docosane	< 10
85-68-7-----	Butylbenzyl phthalate	< 10
646-31-1-----	n-C24 Tetracosane	< 10
56-55-3-----	Benzo(a)anthracene	< 10
91-94-1-----	3,3-Dichlorobenzidine	< 50
218-01-9-----	Chrysene	< 10
117-81-7-----	bis(2-Ethylhexyl)phthalate	< 10
630-01-3-----	n-C26 Hexacosane	< 10
117-84-0-----	Di-n-octyl phthalate	< 10
630-02-4-----	n-C28 Octacosane	< 10
205-99-2-----	Benzo(b)fluoranthene	< 10
207-08-9-----	Benzo(k)fluoranthene	< 10
50-32-8-----	Benzo(a)pyrene	< 10
638-68-6-----	n-C30 Triacontane	< 10
193-39-5-----	Indeno(1,2,3-cd)pyrene	< 20
53-70-3-----	Dibenzo(a,h)anthracene	< 20
191-24-2-----	Benzo(g,h,i)perylene	< 20

No TIC's found.

000027

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
 Lab Sample ID: 17989001
 Client Sample ID: SP-1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 03/08/91
 Date Analyzed: 03/15/91
 Dilution Factor: 1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L		CAS Number		ug/L
319-84-6	alpha-BHC	0.01	U			
319-85-7	beta-BHC	0.02	U			
319-86-8	delta-BHC	0.01	U			
58-89-9	gamma-BHC (Lindane) . . .	0.01	U			
76-44-8	Heptachlor	0.01	U			
309-00-2	Aldrin	0.01	U			
1024-57-3	Heptachlor Epoxide . . .	0.01	U			
959-98-8	Endosulfan I	0.02	U			
60-57-1	Dieldrin	0.02	U			
72-55-9	4,4'-DDE	0.02	U			
72-20-8	Endrin	0.02	U			
33213-65-9	Endosulfan II	0.02	U			
72-54-8	4,4'-DDD	0.02	U			
1031-07-8	Endosulfan Sulfate . . .	0.02	U			
50-29-3	4,4'-DDT	0.02	U			
72-43-5	Methoxychlor	0.04	U			
7421-93-4	Endrin Aldehyde	0.02	U			
57-74-9	Chlordane	0.1	U			
1-35-2	Toxaphene	0.5	U			
874-11-2	Aroclor-1016	0.8	U			
11104-28-2	Aroclor-1221	2	U			
11141-16-5	Aroclor-1232	2	U			
53469-21-9	Aroclor-1242	0.8	U			
12672-29-6	Aroclor-1248	0.4	U			
11097-69-1	Aroclor-1254	0.2	U			
11096-82-5	Aroclor-1260	0.2	U			

 Dibutylchloredate - SS 91

- U - Analyzed for but not detected.
- B - Detected in QC blank.
- JX - Detected, concentration estimated.
- SS - Surrogate Standard reported as percent recovery.

Form I

JMS

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
 Lab Sample ID: 17989002
 Client Sample ID: SP-2

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 03/08/91
 Date Analyzed: 03/15/91
 Dilution Factor: 1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L		CAS Number		ug/L
319-84-6	alpha-BHC	0.01	U			
319-85-7	beta-BHC	0.02	U			
319-86-8	delta-BHC	0.01	U			
58-89-9	gamma-BHC (Lindane) . . .	0.01	U			
76-44-8	Heptachlor	0.01	U			
309-00-2	Aldrin	0.01	U			
1024-57-3	Heptachlor Epoxide . . .	0.01	U			
959-98-8	Endosulfan I	0.02	U			
60-57-1	Dieldrin	0.02	U			
72-55-9	4,4'-DDE	0.02	U			
72-20-8	Endrin	0.02	U			
33213-65-9	Endosulfan II	0.02	U			
72-54-8	4,4'-DDD	0.02	U			
1031-07-8	Endosulfan Sulfate . . .	0.02	U			
50-29-3	4,4'-DDT	0.02	U			
72-43-5	Methoxychlor	0.04	U			
7421-93-4	Endrin Aldehyde	0.02	U			
77-74-9	Chlordane	0.1	U			
001-35-2	Toxaphene	0.5	U			
12674-11-2	Aroclor-1016	0.8	U			
11104-28-2	Aroclor-1221	2	U			
11141-16-5	Aroclor-1232	2	U			
53469-21-9	Aroclor-1242	0.8	U			
12672-29-6	Aroclor-1248	0.4	U			
11097-69-1	Aroclor-1254	0.2	U			
11096-82-5	Aroclor-1260	0.2	U			

 Dibutylchloroendate - SS 93

- U - Analyzed for but not detected.
 B - Detected in QC blank.
 JX - Detected, concentration estimated.
 SS - Surrogate Standard reported as percent recovery.

Form I

Jms



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Chris Ohland
CH2M HILL
1890 Maple
Suite 200
Evanston IL 60201

03-22-91

Sample No.: 128379

Sample Description: SP-3; Grab
DuPont - East Chicago

Date Taken: 03-06-91 1315

Date Received: 03-07-91 0930

BOD - Five Day	<1.	mg/L
Chloride	46.	mg/L
COD	16.	mg/L
Cyanide, Total	0.002	mg/L
Fluoride	2.4	mg/L
Fats, Oils & Grease (FOG)	<1.	mg/L
Nitrogen, Ammonia	0.6	mg/L
Nitrogen, Nitrate	0.37	mg/L
Nitrogen, Nitrite	<0.01	mg/L
Solids, Dissolved	1942.	mg/L
Solids, Suspended	15.	mg/L
Sulfate	610.	mg/L
Aluminum	<0.01	mg/L
Antimony	<0.04	mg/L
Arsenic	0.060	mg/L
Barium	0.046	mg/L
Beryllium	<0.005	mg/L
Cadmium	<0.005	mg/L
Calcium	241.	mg/L
Chromium, Total	0.015	mg/L
Cobalt	<0.02	mg/L
Copper	0.01	mg/L
Iron	2.25	mg/L
Lead	<0.04	mg/L
Magnesium	37.0	mg/L
Manganese	0.70	mg/L
Mercury	<0.0001	mg/L
Nickel	<0.01	mg/L
Potassium	3.51	mg/L
Selenium	<0.005	mg/L

Kelly Jones

Kelly Jones
Project Manager



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ANALYTICAL REPORT

Mr. Chris Ohland
CH2M HILL
1890 Maple
Suite 200
Evanston IL 60201

03-22-91

Sample No.: 128379

Sample Description: SP-3; Grab
DuPont - East Chicago

Date Taken: 03-06-91 1315

Date Received: 03-07-91 0930

Silver	<0.005	mg/L
Sodium	30.2	mg/L
Thallium	<0.04	mg/L
Vanadium	<0.01	ug/L
Zinc	1.14	mg/L

Kelly Jones

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ANALYTICAL REPORT

Mr. Chris Ohland
CH2M HILL
1890 Maple
Suite 200
Evanston IL 60201.

03-22-91

Sample No.: 128380

Sample Description: SP-3 Unfiltered
DuPont - East Chicago

Date Taken: 03-06-91 1315

Date Received: 03-07-91 0930

Aluminum	0.02	mg/L
Antimony	<0.04	mg/L
Arsenic	0.066	mg/L
Barium	0.046	mg/L
Beryllium	<0.005	mg/L
Cadmium	<0.005	mg/L
Calcium	252.	mg/L
Chromium, Total	0.006	mg/L
Cobalt	<0.02	mg/L
Copper	0.02	mg/L
Iron	2.41	mg/L
Lead	<0.04	mg/L
Magnesium	36.4	mg/L
Manganese	0.72	mg/L
Mercury	<0.0001	mg/L
Nickel	<0.01	mg/L
Potassium	3.64	mg/L
Selenium	<0.005	mg/L
Silver	0.005	mg/L
Sodium	30.9	mg/L
Thallium	0.09	mg/L
Vanadium	<0.01	mg/L
Zinc	1.51	mg/L

Kelly Jones

Kelly Jones
Project Manager



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TESTING, INC.

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ANALYTICAL REPORT

Mr. Chris Ohland
CH2M HILL
1890 Maple
Suite 200
Evanston IL 60201

03-22-91

Sample No.: 128379

Sample Description: SP-3; Grab
DuPont - East Chicago

Date Taken: 03-06-91 1315

Date Received: 03-07-91 0930

VOLATILE TARGET COMPOUNDS

Chloromethane	<10.	ug/L
Vinyl chloride	<10.	ug/L
Bromomethane	<10.	ug/L
Chloroethane	<10.	ug/L
1,1-Dichloroethene	<1.0	ug/L
Carbon disulfide	<1.0	ug/L
Acetone	<10.	ug/L
Methylene chloride	<5.0	ug/L
trans-1,2-Dichloroethene	<1.0	ug/L
1,1-Dichloroethane	<1.0	ug/L
Vinyl acetate	<10.	ug/L
2-Butanone	<10.	ug/L
cis-1,2-Dichloroethene	<1.0	ug/L
Chloroform	<1.0	ug/L
1,1,1-Trichloroethane	<1.0	ug/L
1,2-Dichloroethane	<1.0	ug/L
Benzene	<1.0	ug/L
Carbon tetrachloride	<1.0	ug/L
1,2-Dichloropropane	<1.0	ug/L
Trichloroethene	<1.0	ug/L
Bromodichloromethane	<1.0	ug/L
2-Chloroethylvinyl ether	<1.0	ug/L
trans-1,3-Dichloropropene	<1.0	ug/L
4-Methyl-2-pentanone	<10.	ug/L
Toluene	<1.0	ug/L
cis-1,3-Dichloropropene	<1.0	ug/L
1,1,2-Trichloroethane	<1.0	ug/L
Dibromochloromethane	<1.0	ug/L
2-Hexanone	<10.	ug/L

Kelly Jones

Kelly Jones
Project Manager



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ANALYTICAL REPORT

Mr. Chris Ohland
CH2M HILL
1890 Maple
Suite 200
Evanston IL 60201

03-22-91

Sample No.: 128379

Sample Description: SP-3; Grab
DuPont - East Chicago

Date Taken: 03-06-91 1315

Date Received: 03-07-91 0930

Tetrachloroethene	<1.0	ug/L
Chlorobenzene	<1.0	ug/L
Ethylbenzene	<1.0	ug/L
meta & para-Xylene	<1.0	ug/L
Bromoform	<1.0	ug/L
Styrene	<1.0	ug/L
ortho-Xylene	<1.0	ug/L
1,1,2,2-Tetrachloroethane	<1.0	ug/L
1,3-Dichlorobenzene	2.0	ug/L
1,4-Dichlorobenzene	2.4	ug/L
1,2-Dichlorobenzene	2.0	ug/L

Kelly Jones

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Mr. Chris Ohland
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1890 Maple
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Evanston IL 60201

03-22-91

Sample No.: 128379

Sample Description: SP-3; Grab
DuPont - East Chicago

Date Taken: 03-06-91 1315

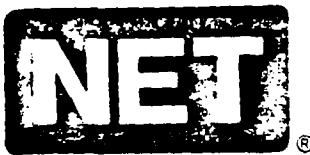
Date Received: 03-07-91 0930

B/N TARGET COMPOUNDS

Aniline	<10.	ug/L
Bis(2-chloroethyl)ether	<10.	ug/L
1,3-Dichlorobenzene	<10.	ug/L
1,4-Dichlorobenzene	<10.	ug/L
1,2-Dichlorobenzene	<10.	ug/L
Benzyl alcohol	<10.	ug/L
Hexachloroethane	<10.	ug/L
N-Nitrosodi-n-propylamine	<10.	ug/L
Bis(2chloroisopropyl)ether	<10.	ug/L
Nitrobenzene	<10.	ug/L
N-Nitrosodimethylamine	<10.	ug/L
Isophorone	<10.	ug/L
Bis(2-chloroethoxy)methane	<10.	ug/L
1,2,4-Trichlorobenzene	<10.	ug/L
Naphthalene	<10.	ug/L
4-Chloroaniline	<10.	ug/L
Hexachlorobutadiene	<10.	ug/L
2-Methylnaphthalene	<10.	ug/L
2-Chloronaphthalene	<10.	ug/L
3-Nitroaniline	<50.	ug/L
2-Nitroaniline	<50.	ug/L
4-Nitroaniline	<50.	ug/L
Acenaphthylene	<10.	ug/L
Dimethyl phthalate	<10.	ug/L
Acenaphthene	<10.	ug/L
Fluorene	<10.	ug/L
4-Chlorophenylphenyl ether	<10.	ug/L
Dibenzofuran	<10.	ug/L
Diethyl phthalate	<10.	ug/L

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ANALYTICAL REPORT

Mr. Chris Ohland
CH2M HILL
1890 Maple
Suite 200
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03-22-91

Sample No.: 128379

Sample Description: SP-3; Grab
DuPont - East Chicago

Date Taken: 03-06-91 1315

Date Received: 03-07-91 0930

N-Nitrosodiphenylamine	<10.	ug/L
Hexachlorocyclopentadiene	<10.	ug/L
2,6-Dinitrotoluene	<10.	ug/L
2,4-Dinitrotoluene	<10.	ug/L
4-Bromophenyl phenyl ether	<10.	ug/L
Hexachlorobenzene	<10.	ug/L
Phenanthrene	<10.	ug/L
Anthracene	<10.	ug/L
Di-n-butylphthalate	<10.	ug/L
Fluoranthene	<10.	ug/L
Pyrene	<10.	ug/L
Benz(a)anthracene	<10.	ug/L
Chrysene	<10.	ug/L
Benzidine	<50.	ug/L
3,3'-Dichlorobenzidine	<20.	ug/L
Butyl benzyl phthalate	<10.	ug/L
Bis(2-ethylhexyl)phthalate	<10.	ug/L
Benzo(b)fluoranthene	<10.	ug/L
Benzo(k)fluoranthene	<10.	ug/L
Benzo(a)pyrene	<10.	ug/L
Indeno(1,2,3-cd)pyrene	<10.	ug/L
Dibenzo(a,h)anthracene	<10.	ug/L
Benzo(ghi)perylene	<10.	ug/L
Di-n-octylphthalate	<10.	ug/L

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ANALYTICAL REPORT

Mr. Chris Ohland
CH2M HILL
1890 Maple
Suite 200
Evanston IL 60201

03-22-91

Sample No.: 128379

Sample Description: SP-3; Grab
DuPont - East Chicago

Date Taken: 03-06-91 1315

Date Received: 03-07-91 0930

ACID TARGET COMPOUNDS

2-Chlorophenol	<10.	ug/L
Phenol	<10.	ug/L
2-Methylphenol	<10.	ug/L
4-Methylphenol	<10.	ug/L
Benzoic acid	<50.	ug/L
2-Nitrophenol	<50.	ug/L
2,4-Dimethylphenol	<10.	ug/L
2,4-Dichlorophenol	<10.	ug/L
4-Chloro-3-methylphenol	<10.	ug/L
2,4,6-Trichlorophenol	<10.	ug/L
2,4,5-Trichlorophenol	<50.	ug/L
2,4-Dinitrophenol	<50.	ug/L
4-Nitrophenol	<50.	ug/L
2-Methyl-4,6-dinitrophenol	<50.	ug/L
Pentachlorophenol	<50.	ug/L

Kelly Jones

Kelly Jones
Project Manager



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ANALYTICAL REPORT

Mr. Chris Ohland
CH2M HILL
1890 Maple
Suite 200
Evanston IL 60201

03-22-91

Sample No.: 128379

Sample Description: SP-3; Grab
DuPont - East Chicago

Date Taken: 03-06-91 1315

Date Received: 03-07-91 0930

PESTICIDE TARGET COMPOUNDS

Aldrin	<0.05	ug/L
alpha-BHC	<0.05	ug/L
beta-BHC	<0.05	ug/L
delta-BHC	<0.05	ug/L
gamma-BHC (Lindane)	<0.05	ug/L
Chlordane	<0.5	ug/L
4,4'-DDD	<0.1	ug/L
4,4'-DDE	<0.1	ug/L
4,4'-DDT	<0.1	ug/L
Dieldrin	<0.1	ug/L
Endosulfan I	<0.05	ug/L
Endosulfan II	<0.1	ug/L
Endosulfan sulfate	<0.1	ug/L
Endrin	<0.1	ug/L
Endrin aldehyde	<0.1	ug/L
Heptachlor	<0.05	ug/L
Heptachlor epoxide	<0.05	ug/L
Methoxychlor	<0.5	ug/L
Toxaphene	<0.5	ug/L
PCB-1016	<1.0	ug/L
PCB-1221	<1.0	ug/L
PCB-1232	<1.0	ug/L
PCB-1242	<1.0	ug/L
PCB-1248	<1.0	ug/L
PCB-1254	<1.0	ug/L
PCB-1260	<1.0	ug/L

Kelly Jones

Kelly Jones
Project Manager

MEMORANDUM

CH2M HILL

TO: Pixie Newman/CH2M HILL
John Fleissner/CH2M HILL

FROM: Dan MacGregor/CH2M HILL

DATE: April 10, 1991

SUBJECT: Data validation for Du Pont-East Chicago, Indiana seep samples.

PROJECT: CHI28770.B0.SP

INTRODUCTION

This memorandum presents the data validation discussion for analytical results for the "one-time monitoring program" samples collected on March 6, 1991 at the Du Pont plant in East Chicago, Indiana.

Duplicate seep samples were analyzed for the priority pollutant list compounds by CH2M HILL's Laboratory in Montgomery, Alabama. CH2M HILL subcontracted out the volatile and semivolatile analysis to Reservoirs Analytical Technologies Inc. in Fort Collins, Colorado, and the asbestos analysis to Environmental Services, Inc. in Denver, Colorado. Sampling and transporting of samples was performed under strict chain-of-custody procedures. QA/QC data included: chain of custody forms, holding time data, method blank data and results, sample duplicate results, instrument calibration data, ICP interference check sample data, post digestion spike data, matrix spike and matrix spike duplicate (MS/MSD) results, and laboratory control spike results.

VOLATILE AND SEMIVOLATILE ORGANIC ANALYSIS

The volatile organics (VOA) and semivolatile organics (SVOA) were analyzed by isotopic dilution methods. These methods call for stable isotopically labeled analogs of each compound to be added to the sample, acting as an internal standard and recovery. Due to these methods containing this internal quality control, QA/QC checks, other than holding time and blank data, are not required. No compound detections were found in either of these samples. The library compound search performed with these methods yielded only two detections, both with the SVOA analysis. These detections were not identifiable by the library search.

BLANKS: The laboratory blank and reagent blank quantitation sheets were inspected for possible contaminants. All blanks were free of compound concentrations at levels equal to or greater than their reporting limits.

HOLDING TIMES: These samples met the holding time requirements for organic analyses.

PESTICIDE AND PCB ANALYSIS

No pesticide or PCB detections were found. The data were validated as described below.

BLANKS: The laboratory blank quantitation sheets were inspected for possible contaminants. All blanks were free of compound concentrations at levels equal to or greater than their reporting limits.

QA/QC PARAMETERS: The following QA/QC parameters were validated and no deficiencies were noted: instrument initial and continuing calibration data, holding time data, matrix spike and matrix spike duplicate (MS/MSD) results, surrogate spike results, and DDT/endrin degradation data.

INORGANIC ANALYSIS

BLANKS: The laboratory blank quantitation sheets were inspected for possible contaminants. All blanks were free of compound concentrations at levels equal to or greater than their reporting limits.

QA/QC PARAMETERS: The following QA/QC parameters were validated and no deficiencies were noted: holding time data, instrument initial and continuing calibration, ICP interference check sample data, and laboratory control spike results. Spike sample recoveries were within control limits for all compounds except for arsenic, which had a high recovery, and selenium, which had a low recovery. Results for these compounds are qualified as estimated "J". Post digestion recoveries were within control limits for all compounds except selenium, which had a low recovery. No additional qualifiers were added to the selenium data due to it already being qualified as estimated. Duplicate analysis results were within control limit for all compounds except lead, this result will be qualified as estimated "J".

Inorganic results that are less than the reporting limit but greater than or equal to the instrument detection limit are qualified as estimated "J".

DUPLICATES

As a measure of precision, the duplicate seep sample results were assessed. Results for all analysis compared well.

CHAIN OF CUSTODY

The chain of custody forms were reviewed for accuracy and completeness. The necessary information was provided and was found to be accurate. All requested analyses were performed and the data packages were complete.

RESULTS

In validating the sample data, an error in the sulfate result was noted, this error was confirmed by the laboratory and corrected results were forwarded. With previously noted qualifiers, the results for all analysis were found to be acceptable and valid.



ESTABLISHED 1802

E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED

EAST CHICAGO, INDIANA 46312

CHEMICALS AND PIGMENTS DEPARTMENT

Dale S. Bryson, Director
Water Division
United States Environmental Protection Agency
Region V (5WCC-TUB-8)
230 South Dearborn Street
Chicago, Illinois 60604

RE: Clean Water Act 308 Information Request
Du Pont East Chicago, Indiana Plant
Docket No. V-W-91-308-11

Dear Mr. Bryson:

This letter and attached notarized statement should be considered an addendum to our March 14, 1991 response to the referenced 308 information request. A copy of the March 14 response is attached.

E. F. Hartstein
Plant Manager

EFH/pjp

Attach.

cc: Assistant Commissioner for Water Management
IDEM
105 South Meridian Street
P. O. Box 6015
Indianapolis, Indiana 46206-6015

Norman D. Griffiths
E. I. du Pont de Nemours & Co., Inc.
DuPont Building Room 7007
Wilmington, Delaware, 19898

Certification of Du Pont Responses (3/14/91) - §308 Request for Information

I, Eugene F. Hartstein, Manager of Du Pont's East Chicago Plant, certify that Du Pont's written responses to questions contained in the EPA Region V "Request for Information", pertaining to the East Chicago Plant, under §308 of the Clean Water Act, sent to the Agency on March 14, 1991, were true and accurate to the best of my knowledge and belief. I agree that should subsequent information come to my attention that indicates that any portion of such statements are false or incorrect, I will so notify Region V.



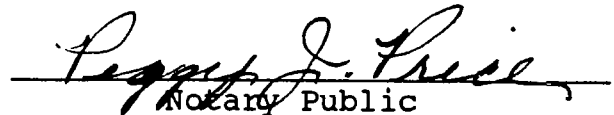
Date:

E. F. Hartstein, Plant Manager
Du Pont East Chicago Plant

STATE OF INDIANA)

LAKE COUNTY)

Before me, Peggy J. Price, this 1st day of April, 1991, personally appeared E. I. du Pont de Nemours and Company by Eugene F. Hartstein, Plant Manager, Du Pont East Chicago Plant and acknowledged the execution of the foregoing instrument.


Notary Public

My commission expires: 3/17/93

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5****Water Division (5W)****230 South Dearborn Street
Chicago, Illinois 60604****FACSIMILE COVER SHEET****TO:***JERRY MEYER***AGENCY/OFFICE/MAIL CODE***DUPONT***OFFICE TELEPHONE NO.****FAX MACHINE NO. 219-391-4678****VERIFICATION NO. 219-391-4653****FROM:***JIM NOVAK***AGENCY/OFFICE/MAIL CODE***USEPA-SWCC-TUB-08***TELEPHONE NO.***312-886-0177***DATE SENT***3/21/91***REPLY TO****FAX MACHINE NO. (FTS) 886-0957
(Automatic) (312) 886-0957****VERIFICATION NO. (FTS) 353-2147
(312) 353-2147****COMMENTS**

2/21/91

OJ MEYER
EI DuPont
5215 KENNEDY AVE.
EAST CHICAGO, IN 46312

RE: 308 INFO. REQUEST
DOCKET # V-W-91-308-11

DEAR JERRY,

AS PER OUR PHONE CONVERSATION THIS MORNING I
AM PROVIDING A CLARIFICATION FOR THE MONITORING
SAMPLE REQUIRED IN 3.A.2 ON PG. 4.

YOU MAY SUBSTITUTE "WEEKLY SAMPLES CONSISTING
OF 3 GRAB SAMPLES OVER AN 8-HOUR PERIOD"
FOR THE PREVIOUSLY SUGGESTED CHANGE.

I.E.: SAMPLE CONSISTS OF 3 GRAB SAMPLES, AND
MONITORING FREQUENCY IS 1/WEEK.

I'm SORRY FOR ANY CONFUSION. IF YOU HAVE
ANY QUESTIONS, PLEASE CALL ME AT 312 886 0177,

Jim Norick



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5

Water Division (5W)

230 South Dearborn Street
Chicago, Illinois 60604

FACSIMILE COVER SHEET

TO:

Jerry Meyer

AGENCY/OFFICE/MAIL CODE

DuPont

OFFICE TELEPHONE NO.

FAX MACHINE NO. *219-391-4678*

VERIFICATION NO. *219-391-4653*

FROM:

Jim Novak

AGENCY/OFFICE/MAIL CODE

USEPA, Compliance Section, 5 WCC-TURB-8

TELEPHONE NO.

312-886-0177

DATE SENT

3-20-91

REPLY TO

FAX MACHINE NO. (FTS) 886-0957
(Automatic) (312) 886-0957

VERIFICATION NO. (FTS) 353-2147
(312) 353-2147

COMMENTS

3/20/91

OJ MEYER
RE. DUFOUR
5215 KENNEDY AVE
EAST CHICAGO, IN 46312

JERRY,

AS PER OUR PHONE CONVERSATION WITH MS PIXIE NEWMAN (CH2MHILL)
ON THIS DATE I AM PROVIDING THE FOLLOWING AUTHORIZATION
REGARDING REQUIREMENTS OF OUR 308 INFORMATION REQUEST
(DOCKET # V-W-91-308-11):

(1) YOU MAY SUBSTITUTE "A WEEKLY COMPOSITE SAMPLE" FOR
THE "8-HOUR FLOW PROPORTIONED COMPOSITE SAMPLE"
SPECIFIED IN 3.A.2 ON PG 4.

(2) YOU MAY SUBSTITUTE "DISSOLVED METALS" FOR "TOTAL
METALS" SPECIFIED IN 3.A.2 ON PG 5. FOR THE
INITIATION OF THE MONTHLY MONITORING PROGRAM
ONLY.

AS I SAID, I WILL FOLLOW UP THIS FAX WITH A LETTER.

YOU MAY ALSO BE INTERESTED TO KNOW THAT I ^{WAS} JUST
HANDLED YOUR RESPONSE DATED 3/14/91.

I'LL CALL YOU TOMORROW.

Jim Novak



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

230 SOUTH DEARBORN ST.

CHICAGO, ILLINOIS 60604

MAR 6 1991

CERTIFIED MAIL

RETURNED RECEIPT REQUESTED

REPLY TO THE ATTENTION OF:
5WCC-TUB-8

Norman D. Griffiths, Esq.
E.I. DuPont DeNemours & Co., Inc.
Legal Department, Suite D-7007
1007 Market Street
Wilmington, Delaware 19898

Re: Section 308 (Clean Water Act)
Information Request
E.I. DuPont DeNemours & Co., Inc.
NPDES Permit No. IN0000329
Docket No. V-W-91-308-11

Dear Mr. Griffiths:

This letter is in response to your letter of February 21, 1991, on the above referenced Section 308 Information Request (Request). As per your request, all communications on this matter will be directed to you as the authorized representative.

Please note that any written statements submitted pursuant to this Request must be notarized and returned under an authorized signature certifying that all contents contained herein are true and accurate to the best of the signatory's knowledge and belief. (See last paragraph on page 5 of the Request)

Regarding your concern about page 6 of the Request, no additional information was/is requested. A copy of the correct page 6 of the Request is enclosed. I'm sorry of any inconvenience this may have caused.


If you have any questions, please contact Mr. Novak at (312) 886-0177.

Sincerely yours,

Dale S. Bryson
Director, Water Division

cc: E.F. Hartstein, DuPont (w/enclosure)
David Nelsen, IDEM (w/enclosure)
Skip Bunner, IDEM (w/enclosure)

Neither the issuance of this Request by the U.S. EPA nor compliance with this Request by DuPont shall be deemed to relieve DuPont of liability for any penalty, fine, remedy or sanction authorized to be imposed pursuant to Section 309(b), (c), (d) and/or (g) of the Clean Water Act, including but not limited to any and all violations addressed in this Request. The U.S. EPA specifically reserves the right to seek any or all of the remedies specified in Section 309(b), (c), (d) and/or (g) of the Clean Water Act for each and every violation cited in this Request.


Dale S. Bryson
Director, Water Division
U.S. Environmental Protection Agency
Region V

February 13, 1991
Date



INDUSTRIAL CHEMICALS
Wilmington, DE 19898

March 14, 1991

Certified Mail
Return Receipt Requested

Dale S. Bryson, Director
Water Division
United States Environmental Protection Agency
Region V (5WCC-TUB-8)
230 South Dearborn Street
Chicago, Ill 60604

Attn: Chief, Compliance Section

Re: Information Request §308 Clean Water Act
Docket No. V-W-91-308-11

Dear Mr. Bryson:

Pursuant to the above-referenced request for information which was served on Friday, February 15, 1991 at the East Chicago, Ind. Plant of E. I. du Pont de Nemours and Company ("Du Pont"), please find below and attached, Du Pont's responses. Our responses are being filed within the time limit discussed with Mr. James Phillipini of your office on March 11, 1991.

Before responding to the specific requests it should be noted that Du Pont believes that page six of the Request served upon it was part of an Order meant for another company (ref. "ESCO"). Du Pont also asserts that the Request may have inadvertently left out a paragraph 4. The paragraphs in the Request go from #3 to #5. There is no paragraph #4. Although we noted the discrepancy about page six in our five-day response to this request, we did not note the missing paragraph 4. We would like to receive a complete Request from your office directed to Du Pont whether or not the items mentioned herein contain any additional requests.

In Du Pont's 5-day response letter, we stated that the apparent groundwater seep had been stopped pursuant to advice from representatives

of Region V and that responding to the requests involving grab sampling and monitoring was not possible because the flow of groundwater no longer existed. At the time of that letter, no flow from the site of the groundwater seep, or in its vicinity, had been observed for over a month. We believed that the actions taken to stop the seep flow, more fully described in our responses (to follow), had proven effective. Plant personnel went to the site of the seep on Monday, March 4, 1991 and observed a flow similar in quantity to the former flow of approximately one-quarter to one-third gallon per minute. We hasten to add that the flow was observed after heavy rains had saturated the area. It was unclear whether the seep was, in fact, due to infiltration of the rainfall or evidence of the presence of a groundwater spring. In any event, by Tuesday, March 5, 1991, the flow had decreased with indications that it would likely stop.

With this as background Du Pont would provide the following answers to the three requests (and sub-parts) seeking information about the groundwater seep.

1. Please provide within five (5) days of receipt of this request, a written statement as to the Company's intent to comply with the terms of this request.

The Request for information was served upon Du Pont's East Chicago Plant on Friday, February 15, 1991. A letter from Norman D. Griffiths, Du Pont Legal, to Dale S. Bryson, Director Water Division was sent within the specified five-day time limit, Certified Mail Return Receipt Requested on Thursday, February 21, 1991. Said letter indicated Du Pont's willingness to comply with the Request, subject to the limitations: (i) that the seep had been stopped pursuant to advice from EPA representatives; and (ii) that no further requests were contained in the (possibly) "missing" parts of the Request (page six). We would add in this response the possibility that paragraph 4 was inadvertently omitted from the Request.

2. Please provide within fifteen (15) days of receipt of this request, the information described in the paragraphs below.

[A] In regard to the stream referred to in paragraph 1., of the Findings above, please answer the following questions.

- (1) For approximately how long has Du Pont been aware of the waste stream?

Du Pont takes issue with the Agency's characterization of this approximately one-third gallon-per-minute groundwater seep as a "waste stream". This seep was not the result of current or recent plant

manufacturing activities. Based on discussions with personnel, Du Pont believes that it first became aware of the groundwater seep on May 7, 1990.

(2) Is the source of the waste stream known? Include any drawings to describe its source and any intermediate steps used to process this waste stream.

Du Pont does not believe that the abandoned and isolated sewer pipeline is a source of the groundwater seep. Rather, Du Pont believes that the seep is a visible surface expression of groundwater at the water table in a low lying area along the Grand Calumet River.

Du Pont is planning additional studies to verify this. The results of these studies will be reported to EPA upon completion. Information generated as a result of an on-going site investigation indicates that groundwater flows in a southerly direction across the plant to the Grand Calumet River, which could provide a mechanism for springs to form.

Prior to 1966, a process/stormwater sewer discharged in the vicinity of the seep. In 1966 the manhole (catch basin) through which both process and stormwater flowed was plugged thereby cutting off feed to the line discharging to the Grand Calumet. In accordance with a Consent Decree between the United States and Du Pont (Civ.#71-H-53, 1972) that line was plugged in 1974 at its up-stream end. A 10-foot section at the discharge end was removed and the remaining pipe plugged at that end. In any event, the former manufacturing processes that fed the line no longer exist. The buildings were razed many years ago. The abandoned line is not connected to the process sewer or storm water systems currently in use. Attachment #1 is a drawing of the former process sewer showing the dates and locations of this work. The drawing was created by O. J. Meyer, the current plant Environmental Coordinator based on old sketches and drawings of the plant's sewer system. Mr. Meyer included in his drawing, sketches showing the approximate locations of work performed on the line in the sixties and seventies when it was originally plugged along with depictions of recent work performed on it in reference to the apparent groundwater seep.

Attachment #2 is a drawing created by E. F. Hartstein, East Chicago Plant Manager, depicting the area surrounding the seep. It is based on field measurements made on March 11, 1991. The probable location of the terminus of the abandoned line is an estimate based on the recollections of a plant employee who was involved in the excavations of the line in July, 1990 and January, 1991.

(3) What Federal, State and/or Local Agencies have been notified of the existence of this waste stream? Include the date of notification and whom you contacted at each agency in your

response and all copies of any correspondence you have to support your notification dates.

Two employees of the Indiana Department of Environmental Management ("IDEM") became aware of the apparent groundwater seep in mid-1990 (approx. July, 1990) during a visit to the plant. They were Skip Bunner and Mike Kuss. Around the same time Bob Tolpa of USEPA Region V also became aware of the seep. There was never any formal "notification" to either agency regarding the seep as it was considered, since its discovery in May, 1990, a surface expression of groundwater.

(4) Was the waste stream ever identified in any NPDES permit application? Please include a copy of any NPDES application and identifying the waste stream.

The groundwater seep was never identified in any NPDES permit application.

(5) Has a Control Plan to cease or treat the discharge been developed? If so, what is the Control Plan, what has been done and when, and what costs are associated with the treatment or elimination of the discharge.

Plans have been developed and implemented in attempts to cease the flow of the seep. No plans have been developed to "treat" the discharge.

In May, 1990 in an effort to identify the source of the seep, Du Pont's environmental engineering consultants, CH2MHill, who were conducting an environmental site investigation of the plant, were instructed to conduct a one-time sampling program to identify the constituents of the seep. This work was separate and apart from the over-all site work and was not contemplated in the original Statement of Work ("SOW") for the investigation. CH2MHill took samples of the seep and analyzed same for the presence of: (i) most compounds on the "Target Compound List" ("TCL") and; (ii) additional selected metals. The analysis did not include TCL herbicides which were never manufactured on site and also did not include an analysis for PCB's. The results of that sampling indicated that the seep's constituents were very similar to those found in the site groundwater.

During the summer of 1990 Du Pont attempted to eliminate the seep by excavating and destroying another segment of the above-described, abandoned process sewer line. You will note in Attachment #1 that this work occurred approximately 100 feet from the river bank. These activities had little effect on the flow.

EPA representatives made a site visit on December 19, 1990 and strongly advised Du Pont to make the seep "go away". Du Pont responded to this advice by directing CH2MHill to sample the seep for selected metals and for non-TCL herbicides that had been manufactured or handled on site. During the week of January 28, 1991 work began to make the seep "go away". Sheet piling was driven to a depth of approximately 20 feet through the abandoned process sewer and its surrounding fill at a location approximately 110 feet from the river bank. In addition, approximately 30 feet of the line extending from a point approximately 25 feet from the river bank back to a point approximately 55 feet from the river bank, was excavated. This portion of the line was broken up in place. CH2MHill took samples of the water in the excavation and of surrounding soil. The excavation was then backfilled with flowable fill.

We are attaching the seep constituent analysis for the sampling that was conducted in May, 1990 (Attachment #3). The data from all the January, 1991 sampling has not undergone quality assurance validation as yet, but will be sent to EPA shortly after this task has been completed.

In 1990, Du Pont incurred approximately \$2,847.00 in costs associated with attempting to eliminate the seep. In 1991, Du Pont has incurred approximately \$29,000 in costs associated with another attempt at eliminating the seep, some of which has not yet been billed as of this writing.

[B] Provide a copy of any and all studies, reports and analyses performed on the waste stream referred to in paragraph 1. of the Findings.

Du Pont has made a thorough and diligent search of its records and files and to its knowledge the only studies, analyses and reports involving the groundwater seep are attached hereto, with the exception, as indicated above, of the analytical work involved with the January, 1991 sampling. We will forward same to you as soon as the report is complete.

- 3. Please provide within thirty (30) days of receipt of this request a discharge report containing the results of the following one time monitoring program and provide the monthly monitoring reports for the continuing monitoring program as specified below. Subparts 3A (1), (2) contain detailed information on the methodology to be used in the sampling/monitoring program. Not re-typed here.**

Per EPA's request, Du Pont has sampled the groundwater seep in accordance with our interpretation of EPA's request of subpart 3(A)(1). The intent and content of the third item in U.S. EPA's request for information is not clear. It is our position that the need for and type of monitoring required should be assessed after U.S. EPA has reviewed existing information about the groundwater seep.

The "one time monitoring program" as defined by U.S. EPA has confusing and ambiguous requirements. U.S. EPA asks Du Pont to provide results for two samples analyzed for Priority Pollutants Numbers 001-013 (a partial listing of Volatile Organic Compound Priority Pollutants) and 114-128 (a partial listing of Inorganic Compound Priority Pollutants, including asbestos), but references U.S. EPA methods 1624, 1625, and 40 CFR 136 Appendix C. The latter referenced methods include volatile organic compounds, semi-volatile organic compounds, and other constituents; many more than the 27 Priority Pollutants listed by number. The request also specified identification and quantification of the 10 largest non-Priority Pollutant peaks. It is not clear whether Du Pont is being asked to quantify the concentrations of 128 Priority Pollutants plus the 10 largest non-Priority Pollutants or 27 Priority Pollutants plus the 10 largest non-Priority Pollutants.

The "monthly monitoring program" described is one that would apply to continuous discharge from a pipe containing process waste. The rationale for applying these sampling and analysis procedures to a groundwater seep monitoring program is not clear. Although groundwater quality does vary somewhat over time, the rate of this change does not warrant "weekly 8-hour, flow proportioned composite sampling, comprising no fewer than three (3) grabs collected at regular intervals." Sampling the seep is essentially the same as sampling groundwater. Single grab samples are appropriate.

The analytical methods 1624 and 1625, specified by U.S. EPA, are not commonly used for analyses of groundwater samples. While these methods are very precise, they are most useful and generally only necessary for samples that have matrix problems. Matrix problems are most common in industrial waste streams that may contain high percentages of sludge, sediments, or large organic polymers that may cause analytical interferences. Typical groundwater, and groundwater discharging from the seep at the East Chicago plant, does not contain such interferences that would necessitate the use of these precise methods. A rationale for specifying methods 1624 and 1625 was not provided by U.S. EPA.

Several of the analyses requested (e.g. BOD, total suspended solids, total inorganics, asbestos) are not typically applied to groundwater. No explanation as to why these parameters should be tested is provided by the U.S. EPA. Analysis of total inorganic concentrations, instead of dissolved inorganic concentrations, will yield erroneously high results. The analytical results will include suspended as well as dissolved constituents. The suspended inorganics detected are more likely to be present as a result of erosion and suspension of river bank fines and wastes than the transport of suspended solids in the groundwater flow. Mud and debris-free samples

cannot be collected off the mud flat where the seep discharges to the Grand Calumet River.


The other factor affecting Du Pont's ability to respond to Item #3 of the EPA's §308 Request for Information is the variability in seep discharge rate since receipt of the Request. When the Request was received, there was no discharge at the former seep location due to the actions taken by Du Pont to eliminate the seep. As of Monday, March 4, 1991, the seep reappeared. Its presence on Monday was correlated to rainfall over the past weekend. By the end of the following day, the rate of flow had decreased. The feasibility of future sampling may be affected by whether the seep is present and, if present, the rate of seep flow at the planned sampling time.

Du Pont requests that U.S. EPA review information provided by Du Pont and meet with Du Pont to discuss a reasonable approach to future seep sampling and/or mitigation prior to the next potential sampling event. Du Pont is willing to provide additional information but would like the path forward to be tailored to meet specific information needs.

Du Pont recognizes that its obligation to provide information under this §308 Request is continuing and will promptly forward any new information that comes to its attention that is responsive to the information requests contained herein.

If you have any questions, please call me on (312) 391-4601.

Very truly yours,



E. F. Hartstein, Plant Manager
Du Pont East Chicago Plant

cc: Assistant Commissioner for Water Management
IDEM
105 South Meridian Street
P. O. Box 6015
Indianapolis, Ind. 46206-6015

Attachments
Est.Chcgo./7

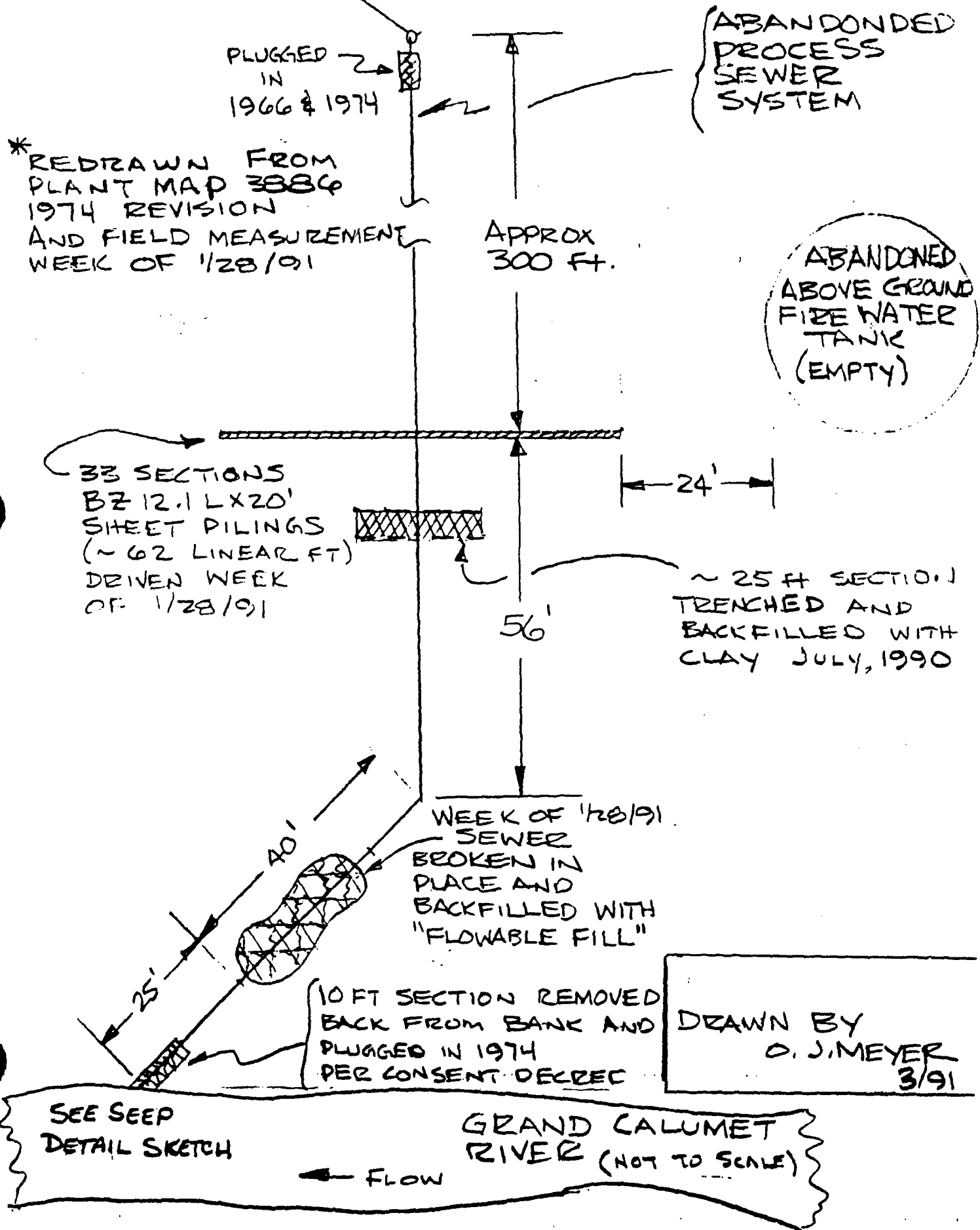
STATE OF INDIANA}

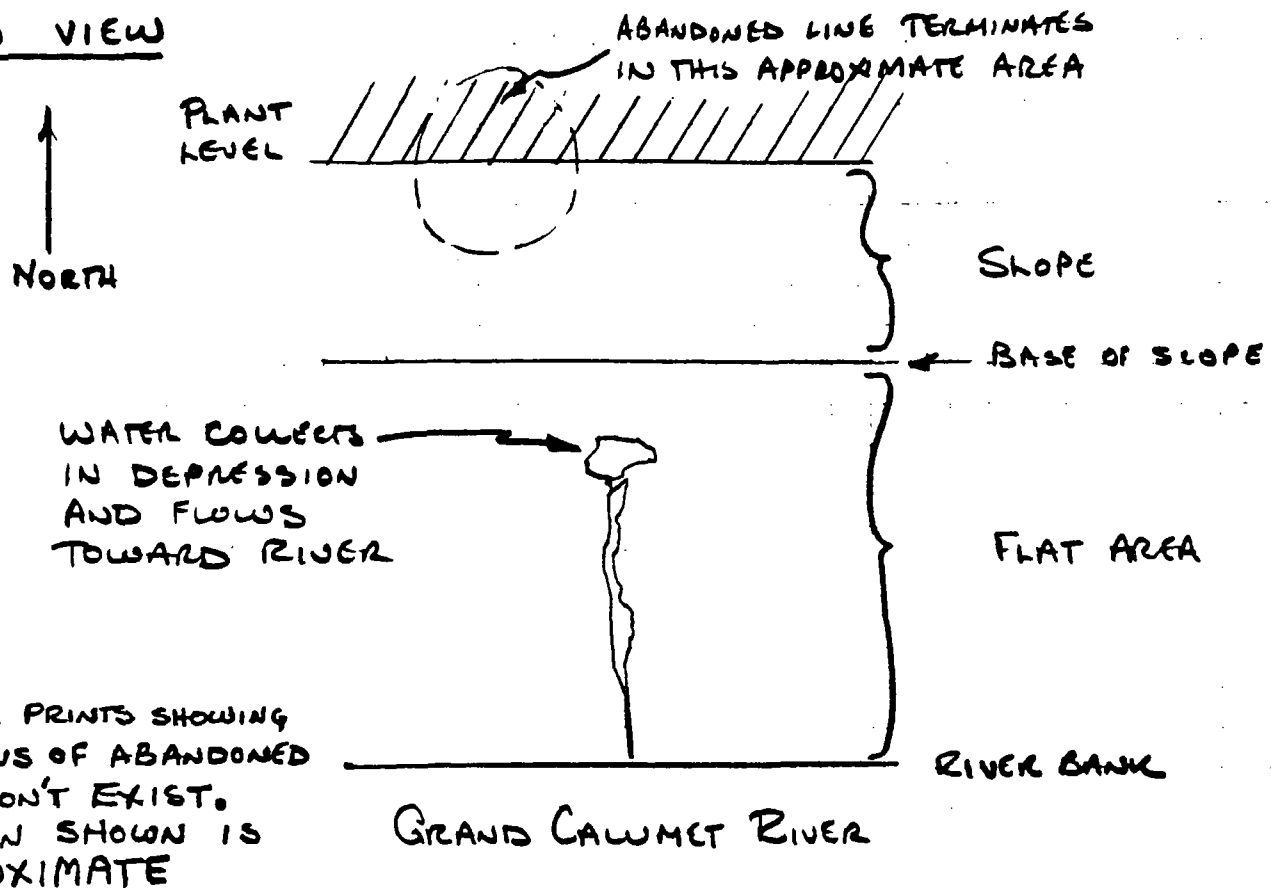
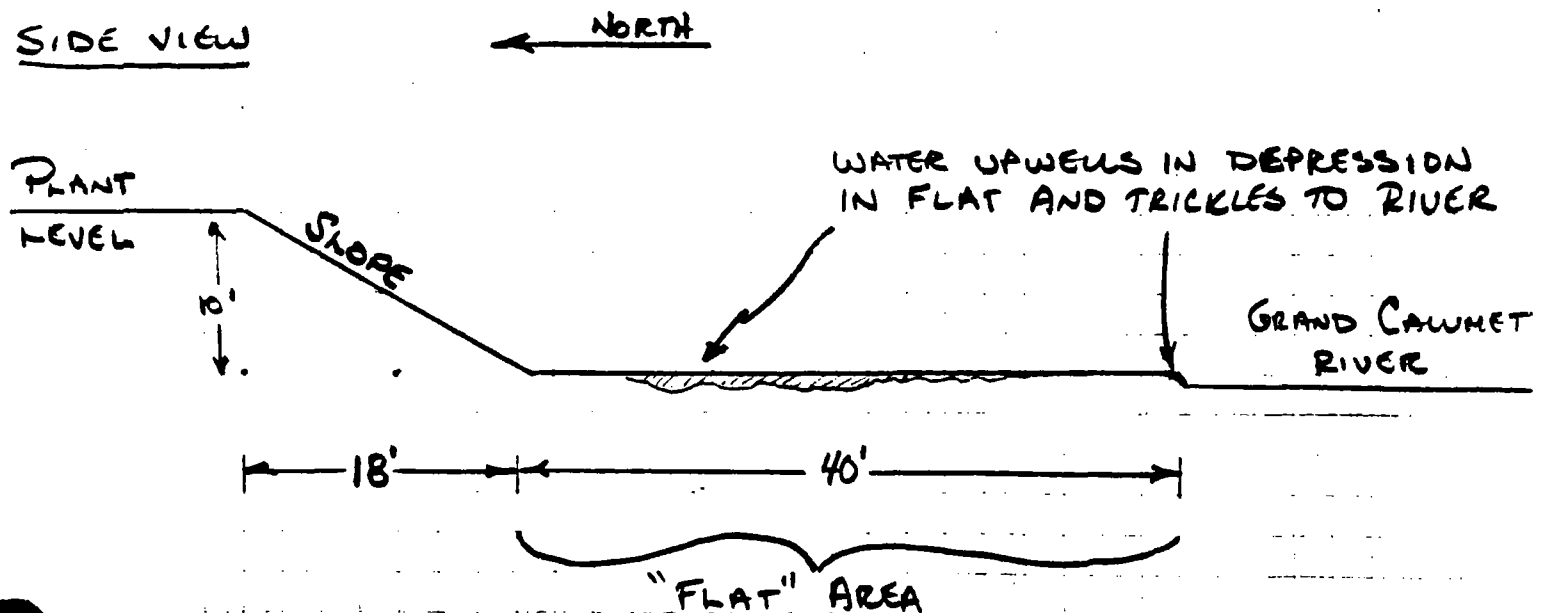
LAKE COUNTY}

Before me, Peggy J. Price, this 14th day of March, 1991,
personally appeared E. I. du Pont de Nemours and Company by Eugene F.
Hartstein, Plant Manager, Du Pont East Chicago Plant and acknowledged the
execution of the foregoing instrument.


Notary Public

My commission expires 3/17/93

SEEP AND ABANDONED PROCESS
SEWER SYSTEM *

SKETCH OF APPARENT GROUNDWATER SEEPPLAN VIEWSIDE VIEW

DIMENSIONS BASED ON MEASUREMENTS MADE 3/11/91.
ALL DIMENSIONS APPROXIMATE.
NOT DRAWN TO STRICT SCALE.

SKETCH BY: E. HARTSTEIN
3-11-91



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Pixie Newman
CH2M HILL
1890 Maple Av.
Suite 200
Evanston IL 60201

06-11-90

Sample No.: 110394

Sample Description: Seep; Surface Water Seep
Project GLO21838.C007; Du Pont East Chicago

Date Taken: 05-23-90 1300

Date Received: 05-23-90 1710

Alkalinity, Bicarb. (CaCO ₃)	74.	mg/L
Alkalinity, Carb. (CaCO ₃)	<1.	mg/L
Alkalinity, Total (CaCO ₃)	74.	mg/L
Chloride	14.	mg/L
Fluoride	0.9	mg/L
Phosphorus, Total	0.75	mg/L
Solids, Dissolved	677.	mg/L
Sulfate	400.	mg/L
Aluminum	<0.02	mg/L
Antimony	<0.04	mg/L
Arsenic	0.026	mg/L
Barium	0.043	mg/L
Boron	0.21	mg/L
Cadmium	<0.005	mg/L
Calcium	105.	mg/L
Chromium, Hexavalent	<0.01	mg/L
Chromium, Total	<0.005	mg/L
Copper	<0.01	mg/L
Iron	1.08	mg/L
Lead	<0.04	mg/L
Magnesium	21.3	mg/L
Manganese	0.24	mg/L
Mercury	<0.0001	mg/L
Nickel	<0.01	mg/L
Potassium	2.57	mg/L
Sodium	12.0	mg/L
Zinc	3.28	mg/L

Toni Gartner
Division Manager

NET**NATIONAL
ENVIRONMENTAL
TESTING, INC.**NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103Tel: (708) 289-3100
Fax: (708) 289-5445**ANALYTICAL REPORT**Ms. Pixie Newman
CH2M HILL
1890 Maple Av.
Suite 200
Evanston IL 60201

06-11-90

Sample No.: 110393

Sample Description: Seep; Surface Water Seep
Project GLO21838.C007; Dupont East Chicago

Date Taken: 05-22-90 1430

Date Received: 05-23-90 1710

COD	34.	mg/L
Cyanide, Total	<0.001	mg/L
Nitrogen, Ammonia	0.20	mg/L
Nitrogen, Kjeldahl	0.41	mg/L

Toni Gartner
Division Manager



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ANALYTICAL REPORT

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Sample No.: 110393

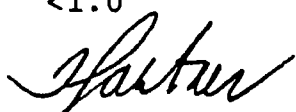
Sample Description: Seep; Surface Water Seep
Project GL021838.C007; Dupont East Chicago

Date Taken: 05-22-90 1430

Date Received: 05-23-90 1710

VOLATILE COMPOUNDS

Acrolein	<10.	ug/L
Acrylonitrile	<10.	ug/L
Benzene	<1.0	ug/L
Bromodichloromethane	<1.0	ug/L
Bromoform	<1.0	ug/L
Bromomethane	<10.	ug/L
Carbon tetrachloride	<1.0	ug/L
Chlorobenzene	<1.0	ug/L
Chloroethane	<10.	ug/L
2-Chloroethylvinyl ether	<1.0	ug/L
Chloroform	<1.0	ug/L
Chloromethane	<10.	ug/L
Dibromochloromethane	<1.0	ug/L
1,2-Dichlorobenzene	<1.0	ug/L
1,3-Dichlorobenzene	<1.0	ug/L
1,4-Dichlorobenzene	<1.0	ug/L
1,1-Dichloroethane	<1.0	ug/L
1,2-Dichloroethane	<1.0	ug/L
1,1-Dichloroethene	<1.0	ug/L
cis-1,2-Dichloroethene	<1.0	ug/L
trans-1,2-Dichloroethene	<1.0	ug/L
1,2-Dichloropropane	<1.0	ug/L
cis-1,3-Dichloropropene	<1.0	ug/L
trans-1,3-Dichloropropene	<1.0	ug/L
Ethyl benzene	<1.0	ug/L
Methylene chloride	<5.0	ug/L
1,1,2,2-Tetrachloroethane	<1.0	ug/L
Tetrachloroethene	<1.0	ug/L
Toluene	<1.0	ug/L
1,1,1-Trichloroethane	<1.0	ug/L


Toni Gartner
Division Manager



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ANALYTICAL REPORT

Ms. Pixie Newman
CH2M HILL
1890 Maple Av.
Suite 200
Evanston IL 60201

06-11-90

Sample No.: 110393

Sample Description: Seep; Surface Water Seep
Project GLO21838.C007; Dupont East Chicago

Date Taken: 05-22-90 1430

Date Received: 05-23-90 1710

Fluoranthene	<10.	ug/L
Fluorene	<10.	ug/L
Hexachlorobenzene	<10.	ug/L
Hexachlorobutadiene	<10.	ug/L
Hexachlorocyclopentadiene	<10.	ug/L
Hexachloroethane	<10.	ug/L
Indeno(1,2,3-cd)pyrene	<10.	ug/L
Isophorone	<10.	ug/L
Naphthalene	<10.	ug/L
Nitrobenzene	<10.	ug/L
N-Nitrosodimethylamine	<10.	ug/L
N-Nitrosodiphenylamine	<10.	ug/L
N-Nitrosodi-n-propylamine	<10.	ug/L
Phenanthrene	<10.	ug/L
Pyrene	<10.	ug/L
1,2,4-Trichlorobenzene	<10.	ug/L

Toni Gartner
Division Manager



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Sample No.: 110393

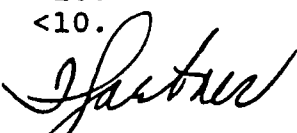
Sample Description: Seep; Surface Water Seep
Project GLO21838.C007; Dupont East Chicago

Date Taken: 05-22-90 1430

Date Received: 05-23-90 1710

BASE/NEUTRAL COMPOUNDS

Acenaphthene	<10.	ug/L
Acenaphthylene	<10.	ug/L
Anthracene	<10.	ug/L
Benzidine	<50.	ug/L
Benzo(a)anthracene	<10.	ug/L
Benzo(b)fluoranthene	<10.	ug/L
Benzo(k)fluoranthene	<10.	ug/L
Benzo(a)pyrene	<10.	ug/L
Benzo(ghi)perylene	<10.	ug/L
Benzyl butyl phthalate	<10.	ug/L
Bis(2-chloroethyl)ether	<10.	ug/L
Bis(2-chloroethoxy)methane	<10.	ug/L
Bis(2-ethylhexyl)phthalate	<10.	ug/L
Bis(2chloroisopropyl)ether	<10.	ug/L
4-Bromophenyl phenyl ether	<10.	ug/L
2-Chloronaphthalene	<10.	ug/L
4-Chlorophenylphenyl ether	<10.	ug/L
Chrysene	<10.	ug/L
Dibenzo(a,h)anthracene	<10.	ug/L
Di-n-butylphthalate	<10.	ug/L
1,2-Dichlorobenzene	<10.	ug/L
1,3-Dichlorobenzene	<10.	ug/L
1,4-Dichlorobenzene	<10.	ug/L
3,3'-Dichlorobenzidine	<20.	ug/L
Diethyl phthalate	<10.	ug/L
Dimethyl phthalate	<10.	ug/L
2,4-Dinitrotoluene	<10.	ug/L
2,6-Dinitrotoluene	<10.	ug/L
Di-n-octylphthalate	<10.	ug/L


Toni Gartner
Division Manager



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Pixie Newman
CH2M HILL
1890 Maple Av.
Suite 200
Evanston IL 60201

06-11-90

Sample No.: 110393

Sample Description: Seep; Surface Water Seep
Project GLO21838.C007; Dupont East Chicago

Date Taken: 05-22-90 1430

Date Received: 05-23-90 1710

VOLATILE COMPOUNDS

1,1,2-Trichloroethane	<1.0	ug/L
Trichloroethene	<1.0	ug/L
Trichlorofluoromethane	<1.0	ug/L
Vinyl chloride	<10.	ug/L
Xylenes, Total	<1.0	ug/L

Teri Gartner
Division Manager



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Sample No.: 110393

Sample Description: Seep; Surface Water Seep
Project GLO21838.C007; Dupont East Chicago

Date Taken: 05-22-90 1430

Date Received: 05-23-90 1710

ACID COMPOUNDS

4-Chloro-3-methylphenol	<10.	ug/L
2-Chlorophenol	<10.	ug/L
2,4-Dichlorophenol	<10.	ug/L
2,4-Dimethylphenol	<10.	ug/L
2,4-Dinitrophenol	<50.	ug/L
2-Methyl-4,6-dinitrophenol	<50.	ug/L
2-Nitrophenol	<10.	ug/L
4-Nitrophenol	<50.	ug/L
Pentachlorophenol	<50.	ug/L
Phenol	<10.	ug/L
2,4,6-Trichlorophenol	<10.	ug/L

Toni Gartner
Division Manager



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

Rec'd. 2/15/91

FEB 13 1991

REPLY TO ATTENTION OF:

5WCC-TUB-8

CERTIFIED MAIL P 564 581 540
RETURN RECEIPT REQUESTED

E. F. Hartstein
Plant Manager
E. I. DuPont
5215 Kennedy Avenue
East Chicago, Indiana 46312

Re: Section 308 (Clean Water Act)
Information Request
E. I. DuPont De Nemours & Co., Inc.
NPDES Permit No. IN0000329
Docket No. V-W-91-308- 11

Dear Mr. Hartstein:

Pursuant to the authority provided by Section 308 of the Clean Water Act, 33 U.S.C. Section 1318, it is hereby requested that you furnish the United States Environmental Protection Agency with information pertaining to the above-referenced facility.

Please submit the information requested in the accompanying document with a notarized statement certifying that all representations contained therein are true and accurate to the best of your knowledge and belief. This information is necessary in order to evaluate E. I. DuPont's compliance with the requirements of the Clean Water Act.

If you have any questions regarding this matter, please contact Mr. James Novak of my staff at (312) 886-0177.

Sincerely yours,


Dale S. Bryson
Director, Water Division

cc: David Nelsen, IDEM
Skip Bunner, IDEM

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION V

IN THE MATTER OF:)	REQUEST PURSUANT TO
)	SECTION 308 OF THE CLEAN
E. I. DuPont De Nemours &)	WATER ACT (CWA) 33 U.S.C.
Company Inc.)	SECTION 1318(a)
)	
)	DOCKET NO. V-W-91-308- 11

The following request is made pursuant to the authority vested in the Administrator of the United States Environmental Protection Agency (U.S. EPA) by the Clean Water Act, 133 U.S.C. Section 1318 and duly delegated to the undersigned Director, Water Division. This request for information pertains to the E. I. DuPont De Nemours & Co., Inc. DuPont Plant located in East Chicago, Indiana (The Plant and/or The Company).

FINDINGS

1. On December 19, 1990, a team of U.S. EPA investigators and a representative of Indiana Department of Environmental Management (IDEM) sampled a waste stream coming from the plant's property and discharging into the Grand Calumet River.
2. Mr. Hartstein and Ms. Newman represented the plant during the December 19, 1990, U.S. EPA and IDEM sampling referred to in paragraph 1., above.
3. Neither IDEM nor U.S. EPA have a record of an NPDES permit for the discharge referred to in paragraph 1 above.

REQUEST FOR INFORMATION

1. Please provide within five (5) days of receipt of this request, a written statement as to The Company's intent to comply with the terms of this request.
2. Please provide within fifteen (15) days of receipt of this request, the information described in the paragraphs below.
 - A. In regard to the stream referred to in paragraph 1., of the Findings above, please answer the following questions:
 - (1) For approximately how long has Dupont been aware of the waste stream?
 - (2) Is the source of the waste stream known? Include any drawings to describe its source and any intermediate steps used to process this waste stream.
 - (3) What Federal, State and/or Local Agencies have been notified of the existence of this waste stream? Include the date of notification and whom you contacted at each agency in your response and all copies of any correspondence you have to support your notification dates.
 - (4) Was the waste stream ever identified in any NPDES permit application? Please include a copy of any NPDES applications and identifying the waste stream.

(5) Has a Control Plan to cease or treat the discharge been developed? If so, what is the Control Plan, what has been done and when, and what costs are associated with the treatment or elimination of the discharge.

B. Provide a copy of any and all studies, reports and analyses performed on the waste stream referred to in paragraph 1. of the Findings.

3. Please provide within thirty (30) days of receipt of this request a discharge report containing the results of the following one time monitoring program and provide the monthly monitoring reports for the continuing monitoring program as specified below.

A. For the waste stream referred to in paragraph 1. of the Findings conduct a one time monitoring program for priority pollutants and initiate a continuous monthly monitoring program for specific parameters for one year.

(1) The one time monitoring program shall consist of at least two (2) grab samples analyzed quantitatively for the Priority Pollutants (40 CFR 423, Appendix A, Numbers 001-013) using U.S. EPA methods 1624 and 1625, and for Priority Pollutants (40 CFR 423, Appendix A, Numbers 114-128) using U.S. EPA method 40 CFR 136, Appendix C.

(Reference: "Method 1624" Volatile Organic Compounds by Isotope Dilution GCMS; Methods 1625: Semivolatile Organic Compounds by Isotope Dilution GCMS." Office of Water Regulations and Standards, U.S. EPA. June 1989.)

In addition, an attempt shall be made to identify and quantify the ten (10) largest, non-Priority Pollutant peaks on the reconstructed gas chromatogram (ion plots), excluding unsubstituted aliphatic hydrocarbons and any peaks less than 10 times higher than the adjacent background noise. Identification shall be attempted by reference to the most current EPA/NIH computerized library of mass spectra, with visual confirmation by an experienced GCMS analyst. Quantification may be an order-of-magnitude estimate, based upon the response of the nearest internal standard.

- (2) The monthly monitoring program shall consist of taking weekly 8-hour, flow proportioned composite samples, comprising no fewer than three (3) grabs, collected at regular intervals and analyzed for the parameters listed below. Monthly Monitoring Reports shall then be submitted within 15 days after the end of the month in which samples were

taken. The analytical and sampling methods used shall conform to methods described in the current version of 40 CFR 136.

Arsenic	Total Copper
Ammonia-N	Total Zinc
Total Dissolved Solids	Flow Rate
Total Fluorides	Total Chlorides
Total Sulfates	pH
Oil and Grease	
Biological Oxygen Demand (5-Day)	
Nitrates-Nitrites	
Chemical Oxygen Demand	
Total Suspended Solids	

All information submitted pursuant to this request should be submitted to:


Director, Water Division,
United States Environmental Protection Agency
Region V (5WCC-TUB-8)
230 South Dearborn Street
Chicago, Illinois 60604
ATTN: Chief, Compliance Section

A copy of said information should be submitted to:

Assistant Commissioner for Water Management
Indiana Department of Environmental Management
105 South Meridian Street
P.O. Box 6015
Indianapolis, Indiana 46206-6015

Written statements submitted pursuant to this Request must be notarized and returned under an authorized signature certifying that all contents contained therein are true and accurate to the best of the signatory's knowledge and belief. Should the signatory find, at any time after submittal of the requested information, that any portion of such statement(s) certified as true is false or incorrect, the signatory shall so notify Region 5. (See attached "Authority And Confidentiality Provisions")

Neither the issuance of this Request by the U.S. EPA nor compliance with this Request by ESCO shall be deemed to relieve ESCO of liability for any penalty, fine, remedy or sanction authorized to be imposed pursuant to Section 309(b), (c), (d) and/or (g) of the Clean Water Act, including but not limited to any and all violations addressed in this Request. The U.S. EPA specifically reserves the right to seek any or all of the remedies specified in Section 309(b), (c), (d) and/or (g) of the Clean Water Act for each and every violation cited in this Request.


Dale S. Bryson
Director, Water Division
U.S. Environmental Protection Agency
Region V

February 13, 1991
Date

Attachment

AUTHORITY AND CONFIDENTIALITY PROVISIONS

Authority

Information requests are made under authority provided by Section 308 of the Clean Water Act, 33 U.S.C. 1318. Section 308 provides that: "Whenever required to carry out the objective of this Act, ...the Administrator shall require the owner or operator of any point source to (i) establish and maintain such records, (ii) make such reports, (iii) install, use, and maintain such monitoring equipment and methods (including where appropriate, biological monitoring methods), (iv) sample such effluent... and (v) provide such other information as he may reasonably require; and the Administrator or his authorized representative, upon presentation of his credentials, shall have a right of entry to...any premises in which an effluent source is located or in which any records...are located, and may at reasonable times have access to and copy any records...and sample any effluents..."

Please be advised that the submission of false statements is subject to federal prosecution under 18 U.S.C. 1001 and that this or any other failure to comply with the requirements of Section 308 as requested by U.S. EPA may result in enforcement action under the authority of section 309 of the Clean Water Act, which provides for specified civil and/or criminal penalties.

Confidentiality

U.S. EPA regulations concerning confidentiality and treatment of business information are contained in 40 CFR Part 2, Subpart B. Information may not be withheld from the Administrator or his authorized representative because it is viewed as confidential. However, when requested to do so, the Administrator is required to consider information to be confidential and to treat it accordingly, if disclosure would divulge methods or processes entitled to protection as trade secrets (33 U.S.C. 1318(b) and 18 U.S.C. 1905), except that effluent data (as defined in 40 CFR 2.302(a)(2)) may not be considered by U.S. EPA as confidential.

The regulations provide that one may assert a business confidentiality claim covering part or all of any trade secret information furnished to U.S. EPA at the time such information is provided to the Agency. The manner of asserting such claims is specified in 40 CFR 2.203(b). In the event that a request is made for release of information covered by such claim of confidentiality or the Agency otherwise decides to make a determination as to whether or not such information is entitled to confidential treatment, notice will be provided to the claimant prior to any release of the information. However, if no claim of confidentiality is made when information is furnished to U.S. EPA, any information submitted to the Agency may be made available to the public without prior notice.

Note: This information request is not subject to the approval requirements of the Paperwork Reduction Act of 1980, 44 U.S.C. Chapter 35.

MEMORANDUM

CH2M HILL

TO: Gene Hartstein/Du Pont
O.J. Meyer/Du Pont
Steve Cline/Du Pont
Diane Heck/Du Pont

FROM: Pixie Newman/CH2M HILL
Linda Hoehne/CH2M HILL

DATE: January 11, 1991

SUBJECT: Wetland Issues Pertinent to Construction Activities Associated with
Study and Remediation at the Du Pont East Chicago Plant

PROJECT: CHI28770.A0.OS

INTRODUCTION

Information was obtained from the U.S. Army Corps of Engineers (CORPS) and the Indiana Department of Natural Resources (IDNR) regarding federal and state regulations as they pertain to activities in the wetland area on the Du Pont East Chicago site. The purpose was to identify wetlands issues that could affect construction practices associated with the site investigation or remediation. Table 1 summarizes information sources referred to in this document.

FINDINGS

WETLAND HABITAT IDENTIFICATION

National Wetland Inventory

The National Wetland Inventory (NWI) maps indicate that the wetlands located on the site contain a mixture of vegetation types including herbaceous groundlayer species, shrubs, trees and floating aquatic plants. These maps are to be used as guide to the presence of wetlands, however this information has not been ground verified thus the information may not be accurate or up-to-date. If construction activities on the wetlands are envisioned, further delineation of the wetland boundaries and identification of plant and animal species present should be obtained, and appropriate permits should be submitted. (Figure 1, illustrating the approximate location of wetlands, will be included after a topographic map has been developed for the property.)

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COASTAL ZONE MANAGEMENT STUDY

The Du Pont site was identified by the Coastal Zone Management study of 1978 as a notable natural area. Vegetation types located in this high quality natural area include marsh, sedge meadow, wet-mesic sand prairie, dry-mesic sand prairie and savanna (Appendix A).

REGULATORY REQUIREMENTS

Both federal and state regulatory agencies should be contacted because actions such as filling in wetlands are subject to federal and state legislation. Failure to notify these agencies can result in project delays, fines, or requirements to restore disturbed areas.

404 Permits

Section 404 of the Clean Water Act requires permit authorization from the Corps for the discharge of dredged or fill material into the waters of the United States, unless excepted by a nationwide 404 Permit. These waters are defined for inland fresh waters as follows: 1) navigable waters of the United States, including adjacent wetlands; 2) all tributaries to navigable waters of the United States, including adjacent wetlands; 3) interstate waters and their tributaries, including adjacent wetlands; and 4) other waters of the United States, such as isolated wetlands and lakes, intermittent streams, prairie potholes, and other waters the degradation and destruction of which could affect interstate commerce. Navigable waters of the United States are defined to mean waters that have been used in the past, are now used, or are susceptible to use as a means to transport interstate or foreign commerce up to the head of navigation (33 CFR 322.2). It is probable that fill activities occurring within the wetlands shown in Figure 1 would be under the jurisdiction of the Corps.

The Corps can issue one of three types of permits: 1) nationwide permits; 2) general permits; and 3) individual permits. Nationwide permits are issued by the Corps for the entire nation and are listed in 33 CFR 330.5. Nationwide permits allow noncontroversial, environmentally insignificant actions to proceed with little, if any, delay or paperwork. Activities authorized by nationwide permits include:

- The repair or replacement of previously authorized fill or structure
- Scientific testing devices
- Survey activities

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- Utility line crossing
- Bank stabilization
- Minor road crossings
- Discharges less than 10 cubic yards
- Discharges into headwaters, isolated or intermittent waters

The individual states may, however, deny water quality certification (Section 401), thus making it necessary to obtain an individual permit in that state. A Section 404 Permit cannot be approved until the IDNR either certifies that the disposal of dredged materials, or the placement of fill materials will not cause significant degradation of water quality, or waives the Section 401 certification.

General permits are issued to the public at large by the Corps after consultation with regulatory agencies when the category or categories of activities are substantially similar in nature and cause only minimal individual and cumulative environmental impacts. No general permits have been issued for the State of Indiana.

The Corps makes the determination on the type of permit appropriate for each project. The application form used to apply for a permit is Engineer Form 4345, Application for a Department of the Army Permit (see Appendix B). The information on this form will be used to determine the appropriate form of authorization, and to evaluate the proposal. Some categories of activities have been previously authorized by nationwide permit, and no further Corps approvals are required. For other activities, a public notice may be required to notify federal, state, and local agencies, adjacent property owners, and the general public of the proposal to allow an opportunity for review and comment or to request a public hearing. Most applications involving public notices are completed within four months and many are completed within 60 days.

The typical processing procedure for a standard individual permit is as follows:

1. Preapplication consultation (optional)
2. Applicant submits Engineering Form 4345 to district regulatory office (Detroit)
3. Application received and assigned identification number
4. Public notice issued (within 15 days of receiving all information)

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5. 15- to 30-day comment period depending upon nature of activity
6. Proposal is reviewed by Corps and the following:
 - Public
 - Special Interest Groups
 - Local agencies
 - State agencies
 - Federal agencies
7. Corps considers all comments
8. Other federal agencies consulted, if appropriate
9. District engineer may ask applicant to provide additional information
10. Public hearing held, if needed
11. District engineer makes decision
12. Permit issued or permit denied and applicant advised of reason

In addition, certain discharges do not require Corp permits. These include:

- Normal farming, silviculture and ranching activities
- Maintenance of currently serviceable structures such as dikes, dams, levees, bridge abutments or transportation structures
- Construction or maintenance of farm or stock ponds or irrigation ditches, or the maintenance of drainage ditches
- Construction of temporary sedimentation basins on a construction site
- Any activity with respect to which a state has an approved program under 208(b)(4) of the Clean Water Act which meets the requirements of Sections 208(b)(4)(B) and (C)

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- Construction or maintenance of farm roads, forest roads, or temporary roads for moving mining equipment, where they are constructed and maintained in accordance with best management practices

Further details on discharges not requiring permits can be found in 33 CFR323.4.

Any filling of the wetland on the Du Pont East Chicago site would require an application be sent to the Corps. It is advantageous to have a preapplication consultation with the Corps during the early planning phase of the project to avoid later delays.

401 CERTIFICATION

If this project would require a 404 Permit, a 401 Water Quality Certification from the Indiana Department of Environmental Management (IDEM) would also be needed (Section 401(a)(1) of the Clean Water Act). If an individual 404 Permit is needed, the Corps would send the IDEM a copy of the public notice and this would be their official notification for 401 certification. If a public notice is not required, such as with a nationwide permit, then the applicant needs to contact the IDEM directly to get 401 certification. Section 401 of the Clean Water Act requires that everyone planning a discharge into navigable waters to certify that they will comply with the water quality standards set by the state.

FLOOD CONTROL ACT OF 1945

Wetlands located within the floodway of a river are regulated by the State of Indiana under the Flood Control Act of 1945. The floodway is the channel of a river and those portions of the flood plains adjoining the channel, which are reasonably required to efficiently carry and discharge the flood water or flood flow.¹ This act does not apply to wetlands beyond the floodway. A map highlighting the floodway along the southern border of the site was provided by the DNR. Comparison of the floodway map to the NWI map indicates that the portion of the wetland adjacent to the river is within the floodway. (This will also be illustrated in Figure 1.) The Flood Control Act prohibits construction of abodes or residences in or on a floodway and requires the prior approval of the IDNR for any other type of construction,

¹"Flood" or "flood water" means the water of any river which is above the bank and/or outside the channel and banks of such river. "Flood flow" is all of the water of a river or stream that exceeds the within bank channel flow of the river.

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excavation, or filling in or on a floodway. To be approvable, the project should be designed so that it would not restrict the floodway, be unsafe to life and property, nor adversely affect the fish, wildlife, or botanical resources (see Appendix C).

NATURAL HERITAGE PROGRAM: STATE THREATENED AND ENDANGERED SPECIES

Information was obtained from the Indiana Natural Heritage Program regarding the presence of endangered, threatened, or rare species found at this site. The least bittern, a state species of special concern, and the king rail, an endangered species in Indiana, have been recorded at this location. The least bittern is a small (13 inches), secretive, marsh-dwelling heron. The king rail is a large (15 inches), long-billed bird of fresh water and salt marshes. It feeds on small crustaceans, fishes, frogs, insect, grains and berries. No endangered, threatened, or rare plants have been recorded at this site, and no federal species have been documented in this area.

Birds classified as endangered or threatened in Indiana are protected from "taking" pursuant to the Nongame and Endangered Species Act of 1973 (Indiana Code 14-2-8.5) and Fish and Wildlife Administrative Rules (310IAC3.1-2-7). The IDNR reviews and comments on proposed projects as part of the individual 404 permit process. Information from the Natural Heritage Program is found in Appendix A. Additional information on plant species present at this site is found in Appendix D.

The IDNR Environmental Review coordinator needs to be contacted so that other divisions within the IDNR can review the proposal to determine if other regulations apply regarding the site or proposed activities. For more information, contact:

Patrick R. Ralston, Director
Department of Natural Resources
ATTN: Steve Jose
Environmental Review Coordinator
605 State Office Building
Indianapolis, IN 46204
(317) 232-4070

MEMORANDUM

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FEDERAL ENDANGERED SPECIES ACT

If construction activities in the potential habitat of federal threatened or endangered species are being considered, consultation is needed with the U.S. Fish and Wildlife Service regarding the presence of these species in the area. This is required under Section 7 of the Endangered Species Act of 1973. If these species are present, U.S. Fish and Wildlife Service will require Du Pont to submit additional information regarding the possible effect of the project on these species and their plans for mitigation, if needed. The Service can be contacted at the following address:

U.S. Fish and Wildlife Service
718 North Walnut
Bloomington, IN 47401
(812) 334-4261

SUMMARY

Both federal and state agencies should be contacted during the early planning stages so that an acceptable environmentally sensitive remedial alternative can be developed and subsequent regulatory review problems can be avoided. Site visits with appropriate agency personnel during the early planning stages would be beneficial. The Corps would be interested in the project if fill activities took place within the wetland area. The State of Indiana would be concerned because of potential conflicts with endangered, threatened, or rare species and their habitat and activities in the floodway.

Table 1
Summary of Information Sources

Information Source/Agency	Contact	Information Collected	Comments
Earth Science Information Center	U.S. Geological Survey 507 National Center Reston, VA 22092	National Wetland Inventory maps for Highland and Whiting Indiana quadrangles	Shows locations of wetlands onsite, information on vegetation types and hydrology.
U.S. Army Corps of Engineers	William Davy Department of the Army Detroit District Corps of Engineers P.O. Box 1027 Detroit, MI 48231	Application for Department of Army Permit for placing fill in waters of United States (Section 404 of the Clean Water Act)	A Corps permit could be required if fill would be placed in the wetland.
Indiana Department of Natural Resources/Division of Water	Scott Morlock IDNR Division of Water 2475 Directors Row Indianapolis, IN 46241	Limits of floodway of Grand Calumet River in project area.	The Flood Control Act, IC 13-2-22, requires the prior approval of the Indiana DNR for any nonresidential type of construction, excavation, or filling in or on a floodway. Water Resources Management Act, IC 13-2-6.1 requires all significant water withdrawal facilities to be registered with the DNR.
Indiana Natural Heritage Program	Michelle Marten IDNR Division of Nature Preserves 605 State Office Building Indianapolis, IN 46204-2267	Information on state listed animal species onsite.	One state endangered bird and one bird of special concern recorded from site.
Barbara Plampin	18 East Road Dune Acres Chesterton, IN (219) 787-9438	Species list for plants observed onsite.	

CONTENTS

Cover Letter, Division of Natural Reserves

Endangered, Threatened, and Rare Species and High Quality Natural Areas
Documented from Du Pont's Facility
in East Chicago, Indiana

Indiana's Rare Plants and Animals Checklist

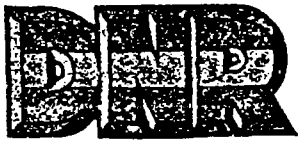
Species Lists for Du Pont

Inland

Riverfront

Du Pont Tract Map

Information To Be Submitted To The Department of Natural Resources For
Environmental Review of Projects



INDIANA DEPARTMENT OF NATURAL RESOURCES

PATRICK R. RALSTON, DIRECTOR

Division of Nature Preserves
605B State Office Building
Indianapolis, Indiana 46204-2267
317-232-4052

September 24, 1990

Linda Hoehne
CH2M HILL
310 West Wisconsin Avenue, Suite 700
PO Box 2090
Milwaukee, WI 53201

Dear Ms. Hoehne:

I am responding to your request for information on the endangered, threatened, or rare (ETR) species found at Du Pont's East Chicago facility. The Indiana Natural Heritage Program's databank has been checked and enclosed you will find a list of the ETR animals found at the site. We have no documented occurrences of ETR plants here. I have also included information on the high quality natural communities known from the site. Please note that the Du Pont site was initially identified as a notable natural area by the Coastal Zone Management study of 1978.

The information I am providing does not preclude the requirement for further consultation with the U.S. Fish and Wildlife Service as required under Section 7 of the Endangered Species Act of 1973. You should contact the Service at their Bloomington, Indiana office.

U.S. Fish and Wildlife Service
718 North Walnut
Bloomington, Indiana 47401
(812)334-4261

At some point, you may need to contact the Department of Natural Resources' Environmental Review Coordinator so that other divisions within the department have the opportunity to review your proposal. Please refer to the enclosed Environmental Review Guidelines. For more information, please contact:

Patrick R. Ralston, Director
Department of Natural Resources
attn: Steve Jose
Environmental Review Coordinator
605 State Office Building
Indianapolis, IN 46204
(317)232-4070

"EQUAL OPPORTUNITY EMPLOYER"

Page 2 - CH2M HILL

I have enclosed an invoice for \$30.00 to cover the cost of the request.

Thank you for contacting the Indiana Natural Heritage Program. Please contact me if you have any questions or need additional information.

Sincerely,

Michelle L. Martin

Michelle L. Martin
Indiana Natural Heritage Program

enclosures

21 SEP 1990

ENDANGERED, THREATENED, RARE SPECIES AND HIGH QUALITY NATURAL AREAS
DOCUMENTED FROM DU PONT'S FACILITY IN EAST CHICAGO, INDIANA

Species Name..... Common Name..... State Fed..

IXOBRYCHUS EXILIS
RALLUS ELEGANSLEAST BITTERN
KING RAILSSC
SEPRAIRIE - SAND DRY-MESIC
PRAIRIE - SAND WET-MESIC
SAVANNA - SAND DRY
WETLAND - MARSH
WETLAND - MEADOW SEDGEDRY-MESIC SAND PRAIRIE
WET-MESIC SAND PRAIRIE
DRY SAND SAVANNA
MARSH
SEdge MEADOWSTATE STATUS: SE=endangered, SSC=special concern
FEDERAL STATUS: none documented for this site

Indiana's Rare Plants and Animals

CHECKLIST OF ENDANGERED & THREATENED SPECIES

This publication was developed to provide a checklist of rare plants and animals in Indiana. The director of the Indiana Department of Natural Resources has the legislative authority for the conservation of endangered natural resources in Indiana. The Division of Fish and Wildlife and Division of Nature Preserves are responsible for the conservation of animals and plants, respectively, and each agency has developed the lists included in this publication. These lists are organized by the degree of endangerment within each major taxonomic group. Animals are listed in taxonomic order and plants are listed in alphabetical order by scientific name within each category of state classification.

Indiana Classification and Protection

Vertebrates and mollusks classified as endangered or threatened in Indiana are protected from "taking" pursuant to the Nongame and Endangered Species Act of 1973 (Indiana Code 14-2-8.5) and Fish and Wildlife Administrative Rules (310 IAC 3.1-2-7). Plants are protected by the Nature Preserves Act (Indiana Code 14-4-5) which prohibits the collecting of plants occurring on dedicated Nature Preserves. Plants are also afforded protection by the IDNR General Property Rules (310 IAC 5-1-4,9) which prohibit the picking or molesting of trees, shrubs, vines or flowers occurring on Nature Preserves, Museum and Historic Sites, Wetland Conservation Areas, Wildlife Habitat Trust Areas, and lands owned, licensed and leased to the IDNR. State parks, state forests and state reservoir properties provide protection under 310 IAC 5-1-9, paragraph d.

Federal Classification and Protection

Species are classified as federally endangered or threatened pursuant to the Endangered Species Act of 1973 (Public Law 93-205 as amended) and are listed under 50 CFR 17.11 (Animals) and 17.12 (Plants). This act prohibits the "taking" of animals listed as endangered or threatened. Federally listed plants are protected when federal funding or permits are required. The federal government also maintains a Notice of Review for Plants and Animals. The following lists include those species that are formally listed as endangered or threatened, as well as those species that are either in the process of being listed (Category 1) as endangered or threatened, or under review for listing (Category 2).

This is not intended to be a complete listing of all restrictions applied to the protection of endangered or threatened plants and animals. Please contact the appropriate agency listed on the last page for more specific information.

duPont Tract 95

The duPont tract lies just north of the Grand Calumet in East Chicago. Owned by E. I. duPont de Nemours & Company, the site is bordered by the duPont plant on the west, Cline Avenue on the east, the Grand Calumet on the south, and railroad tracks on the north. Because this area is so large and diverse, it was divided into two distinct portions for the purpose of this inventory: the riverfront habitats and the area farther inland.

duPont: Inland

The inland portion of the duPont tract is itself diverse, including sand savanna (with mesic and xeric prairie conditions) cattail marshes, sedge meadows and ponds. Along the northernmost end of the area, cattail marshes dominate, until they reach the open water of a large pond on the south. In the pond itself, the cattails are replaced by giant reeds (*Phragmites communis*).

Other smaller ponds lie to the southwest of this main pond, each surrounded by steep banks. As with the larger pond, water quality is poor, and a visual spot check of the water confirmed only a few signs of life. The far southwest corner of the natural area is shared by two habitats, a flooded woodland near the river, and just north of it, a thicket of giant reeds.

A large section of the duPont tract, in the central and eastern portion, is sand savanna, a sparsely wooded community with prairie plants as ground cover. Here the predominant species are black oak and white oak.

SPECIES LIST FOR DuPONT (INLAND)	
Chorus Frog	AMPHIBIANS <u>Pseudacris triseriata</u>
Painted Turtle	REPTILES <u>Chrysemys picta</u>
Deer	MAMMALS <u>Odocoileus virginianus</u> (tracks only)
Muskrat	<u>Ondatra zibethica</u> (tracks only)
American Coot	BIRDS <u>Fulica americana</u>
Mallard	<u>Anas platyrhynchos</u>
Wood Duck	<u>Aix sponsa</u>
Blue-winged Teal	<u>Anas discors</u>
Pintail	<u>Anas acuta</u>
Goldeneye	<u>Bucephala clangula</u>
Oldsquaw	<u>Clangula hyemalis</u>
Horned Grebe	<u>Colymbus auritus</u>
Common Snipe	<u>Capella gallinago</u>
Long-billed Dowitcher	<u>Limnodromus scolopaceus</u>
Killdeer	<u>Charadrius vociferus</u>
American Crow	<u>Corvus brachyrhynchos</u>
Common Flicker	<u>Colaptes auratus</u>
Brown Thrasher	<u>Toxostoma rufum</u>
Rufous-sided Towhee	<u>Pipilo erythrophthalmus</u>

duPont: Riverfront

Both the north and south banks of the Grand Calumet River near duPont were inventoried. During numerous site visits to this part of the river, it was observed that the water was teeming with carp that had swum upstream to spawn. Their presence underscores the progress this river has made--many years elapsed when no fish were seen in the Grand Calumet at all.

On the north side of the river, the flooded woodland mentioned earlier extends all the way to the shore, but is interspersed with arrowheads. As one travels eastward on the north bank, cattails take over, bordered on the north by mesic prairie and a sedge meadow.

On the south bank of the Grand Calumet, which is composed of pumice and boulders, an oak wood community gradually gives way to mesic prairie as the river flows west. Along the riverfront, the unique blend of forest, prairie and marsh harbors an integrated wildlife population that represents each habitat. Animals typically spotted along a river include: herons, turtles, bullfrogs, kingfishers, water snakes, otters and muskrats. A list of species sighted along the duPont area riverfront and farther inland is included in this report.

SPECIES LIST FOR DuPONT (RIVERFRONT)	
American Frog	AMPHIBIANS <u>Bufo americanus</u>
Chorus Frog	<u>Pseudacris triseriata</u>
Snapping Turtle	REPTILES <u>Chelydra serpentina</u>
Carp	FISH <u>Cyprinus carpio</u>
Virginia Opossum	MAMMALS <u>Didelphis virginiana</u>
Muskrat	<u>Ondatra zibethica</u>
Eastern Raccoon	<u>Procyon lotor</u>
Mallard	BIRDS <u>Anas platyrhynchos</u>
Blue-winged Teal	<u>Anas discors</u>
Red-tailed Hawk	<u>Buteo jamaicensis</u>
Ring-necked Pheasant	<u>Phasianus colchicus</u>
Common Gallinule	<u>Gallinula chloropus</u>
American Coot	<u>Fulica americana</u>
Bank Swallow	<u>Riparia riparia</u>
Cliff Swallow	<u>Petrochelidon pyrrhonota</u>
Red-winged Blackbird	<u>Agelaius phoeniceus</u>



LAKE
DUPONT TRACT
QUADRANGLE HIGHLAND 7.5'
LOCATION Sec. 34 T37N. R9W

.

TRI-STATE 3 LANE 16 HIGHWAY

CLINE AV
INTERCHANG

INFORMATION TO BE SUBMITTED
TO THE DEPARTMENT OF NATURAL RESOURCES
FOR ENVIRONMENTAL REVIEW OF PROJECTS

To assure a thorough review, the applicant should provide the following:

- A. Existing project site conditions
- B. Descriptions of the proposed project
- C. Secondary development
- D. Adequate graphic display

A. Existing project site conditions:

Describe past and current land uses that have affected the site (e.g. agricultural, residential development, landfill, etc.).

Information that indicates the size and character of the project site and the surrounding area (e.g. productive farmland, historic sites, recreation areas, wetlands, etc.) is needed.

For any projects involving rights-of-way, the existing right-of-way dimensions, and any additional right-of-way should be described.

Any ecologically sensitive areas such as steep slopes, wetlands, or forests should be described in detail.

A list of vegetation and wildlife on the site should be included. Local college or university biology department staff might be helpful in this matter.

Any water features present (e.g. streams, lakes, ditches, drains, etc.) need to be identified.

B. Description of the proposed project:

Describe what the project entails, including all construction and earthmoving to take place.

Describe any draining, paving, filling, vegetative clearing, and dredging.

Elaborate on any aspect affecting surface water or drainage of the project (e.g. work in or near streams, lakes, ditches, etc.).

Emphasize the environmental and ecological consequences of the project.

CONTENTS

Application for Department of the Army Permit (33 CFR325)

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

(33 CFR 325)

OMB APPROVAL NO. 0702-0036

Expires 30 June 1992

Public reporting burden for this collection of information is estimated to average 5 hours per response for the majority of cases, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Applications for larger or more complex projects, or those in ecologically sensitive areas, will take longer. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

The Department of the Army permit program is authorized by Section 10 of the Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act and Section 103 of the Marine, Protection, Research and Sanctuaries Act. These laws require permits authorizing activities in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Information provided on this form will be used in evaluating the application for a permit. Information in this application is made a matter of public record through issuance of a public notice. Disclosure of the information requested is voluntary; however, the data requested are necessary in order to communicate with the applicant and to evaluate the permit application. If necessary information is not provided, the permit application cannot be processed nor can a permit be issued.

One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

1 APPLICATION NUMBER (To be assigned by Corps)

3 NAME, ADDRESS, AND TITLE OF AUTHORIZED AGENT

2 NAME AND ADDRESS OF APPLICANT

Telephone no. during business hours

A/C () _____ (Residence)

A/C () _____ (Office)

Telephone no. during business hours

Statement of Authorization: I hereby designate and authorize _____
_____ to act in my
behalf as my agent in the processing of this permit application and to
furnish, upon request, supplemental information in support of the application.

A/C () _____ (Residence)

A/C () _____ (Office)

SIGNATURE OF APPLICANT

DATE

DETAILED DESCRIPTION OF PROPOSED ACTIVITY

4a. ACTIVITY

4b. PURPOSE

4c. DISCHARGE OF DREDGED OR FILL MATERIAL

5. NAMES AND ADDRESSES OF ADJOINING PROPERTY OWNERS, LESSEES, ETC., WHOSE PROPERTY ALSO ADJOINS THE WATERWAY

6. WATERBODY AND LOCATION ON WATERBODY WHERE ACTIVITY EXISTS OR IS PROPOSED

7. LOCATION ON LAND WHERE ACTIVITY EXISTS OR IS PROPOSED

ADDRESS:

STREET, ROAD, ROUTE OR OTHER DESCRIPTIVE LOCATION

COUNTY

STATE

ZIP CODE

LOCAL GOVERNING BODY WITH JURISDICTION OVERSITE

8. Is any portion of the activity for which authorization is sought now complete? ☐ YES ☐ NO
If answer is "yes" give reasons, month and year the activity was completed. Indicate the existing work on the drawings.

9. List all approvals or certifications and denials received from other federal, interstate, state or local agencies for any structures, construction, discharges or other activities described in this application.

ISSUING AGENCY	TYPE APPROVAL	IDENTIFICATION NO.	DATE OF APPLICATION	DATE OF APPROVAL	DATE OF DENIAL
----------------	---------------	--------------------	---------------------	------------------	----------------

10. Application is hereby made for a permit or permits to authorize the activities described herein. I certify that I am familiar with the information contained in the application, and that to the best of my knowledge and belief such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities or I am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT

DATE

SIGNATURE OF AGENT

DATE

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 3 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of The United States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false fictitious or fraudulent statement or entry, shall be fined not more than \$10,000 or imprisoned not more than five years, or both.

CONTENTS

Cover Letter, Division of Water

Instructions for Making Application for Approval of Construction in a Floodway

Permit Application for Construction in a Floodway (State Form 42946)



INDIANA DEPARTMENT OF NATURAL RESOURCES

PATRICK R. RALSTON, DIRECTOR

Division of Water
2475 Directors Row
Indianapolis, Indiana 46241
317-232-4160
FAX: 317-241-8771

October 9, 1990
Rec# 45-901009-2

Ms. Linda Hoehne
CH2M HILL
310 West Wisconsin Avenue, Suite 700
P.O. Box 2090
Milwaukee, Wisconsin 53201

Re: Lake - Highland
T - Grand Calumet River

Dear Ms. Hoehne:

Thank you for your letter of August 28, 1990 requesting information concerning a groundwater facility on a tract of land along the Grand Calumet River. Based on your description, the parcel, which lies in Sections 33 and 34, Township 37 N., Range 9 W., extends from Kennedy Avenue to Cline Avenue between the Elgin Joliet and Eastern Railway and the River, near East Chicago, Lake County.

Historic flood information indicates that the July 1955, August 1955, and September 1955 floods reached elevations of about 582.6, 582.4 and 582.2 feet, National Geodetic Vertical Datum, (NGVD), respectively, at the upstream limit of the tract and about 582.0, 581.7 and 581.4 feet, NGVD, respectively, at the downstream limit of the tract.

According to the City of East Chicago Flood Insurance Study, the 100-year frequency flood would reach an elevation of about 586.4 feet, NGVD, at the upstream limit of the tract sloping uniformly to an elevation of about 585.2 feet, NGVD, at the downstream limit of the tract.

The Flood Control Act, IC 13-2-22, prohibits constructing abodes or residences in or on a floodway and requires the prior approval of the Department of Natural Resources for any other type of construction, excavation, or filling in or on a floodway. To be approvable a project should be designed so that it will not restrict the floodway, be unsafe to life and property, nor adversely affect the fish, wildlife, or botanical resources.

Panels 5 and 6 of the East Chicago Flood Insurance Study indicate that the floodway of Grand Calumet River passes through a portion of the tract. For your information, we have delineated this floodway in yellow on the enclosed map. No new residential construction is allowed in the floodway area and detailed plans for other types of work in the floodway should be submitted for formal approval by the Department of Natural Resources under Section 13 of the Flood Control Act. Permit applications and instructions are enclosed for your convenience.

The dark-shaded portion of the tract outside of the floodway and below the 100-year frequency flood elevation is called the floodway fringe area.

"EQUAL OPPORTUNITY EMPLOYER"



Letter to Ms. Hoehne
Page Two
October 9, 1990
Rec# 45-901009-2

While these portions of the site would be subject to flooding, they are not required for the conveyance of flood waters during the 100-year frequency flood; therefore, approval by the Department of Natural Resources under Section 13 of the Flood Control Act for portions of the project in these fringe areas is not required unless a dam is to be constructed.

We recommend that any building which you propose for this site, noting again that residences are prohibited in the floodway under the provisions of the Flood Control Act, be provided with a flood protection grade set at least 2 feet above the 100-year frequency flood elevation. The flood protection grade is the elevation of the lowest floor of a building or structure. If a basement is included, the basement floor should be considered to be the lowest floor.

You should note that portions of the tract are located in a "Special Flood Hazard Area" as defined by the Federal Insurance Administration. If any existing or proposed building lies within this "Special Flood Hazard Area" current or future owners may be required to purchase flood insurance as a condition of obtaining a mortgage on the property. The final determination regarding the flood insurance requirement is the responsibility of the lending institution. Flood insurance might also be required for any direct federal assistance for this property, such as disaster aid.

Depending on the type of building and the lowest floor elevation, including basements, flood insurance premiums can be substantial under the regular phase of the program. The owner should discuss this matter with an insurance agent before starting any plans for construction.

In addition to the above requirements, the Water Resources Management Act, IC 13-2-6.1, requires all significant water withdrawal facilities to be registered with the Department of Natural Resources. As defined by the statute, a significant water withdrawal facility is any water withdrawal facility of a person that, in the aggregate from all sources and by all methods, has the capability of withdrawing more than 100,000 gallons of ground water, surface water, or ground and surface water combined in 1 day. This would be equivalent to any stationary or portable pump having a withdrawal capacity of 70 gallons per minute (gpm). If your project involves any water withdrawals (including permanent or temporary dewatering) which meets the requirements of the law, please contact the Division's Water Use Section at (317) 232-1106.

You may also have to obtain a permit from the Corps of Engineers under Section 404 of the Federal Water Pollution Control Act or Section 10 of the Rivers and Harbors Act. Information relative to the Corps' of Engineers permits may be obtained from:

U.S. Army Corps of Engineers
Detroit District Office
P.O. Box 1027
Detroit, Michigan 48231
Telephone (313) 226-2218

You should not construe this letter to be a building permit, approval of the proposed project, or a waiver of the provisions of local building or zoning ordinances.

Letter to Ms. Hoehne

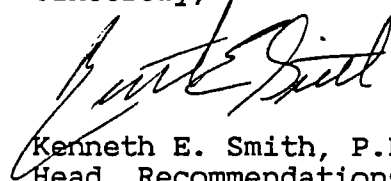
Page Three

October 9, 1990

Rec# 45-901009-2

Thank you for this opportunity to be of assistance; your interest in providing safe flood plain development is appreciated. If you have any questions regarding this letter, please contact Mr. Joel L. Cruz, Hydraulic Engineer, in our Recommendations/Violations Section, at (317) 232-4167.

Sincerely,



Kenneth E. Smith, P.E.
Head, Recommendations/
Violations Section
Division of Water

KES/JLC

pc: East Chicago Plan Commission
Detroit District, Corps of Engineers

Enclosures: Application Form and Instructions
Floodway Map

State of Indiana
DEPARTMENT OF NATURAL RESOURCES
Indianapolis, Indiana

INSTRUCTIONS FOR MAKING APPLICATION FOR APPROVAL
OF CONSTRUCTION IN A FLOODWAY

APPLICANT/AGENT/OWNER INFORMATION

Name of applicant:

State the applicant's full name. If the applicant is the owner of the property where the proposed project is to be located, state the name as it appears on the deed or title. (if the property is jointly held, include the names of all owners). Also include the address(es) and telephone number(s) of the individual(s), organization or company proposing the project.

Name of agent/engineer:

State the full name, address and telephone number(s) of the applicant's agent or engineer. This individual will be contacted by the Division of Water staff during processing of the application.

Property owner information and authorization:

- a. If the applicant is the owner of the property where the proposed project is to be located, skip this section and proceed to the section entitled NATURE OF THE PROPOSED PROJECT.
- b. If the applicant is not the owner of the property where the proposed project is to be located, state the full name(s), address(es) and telephone number(s) of the owner(s) and have the owner(s) sign and date the STATEMENT OF OWNER'S AUTHORIZATION. The owner's signature authorizes the applicant to proceed with the proposed activity after receiving the prior approval of the Natural Resources Commission. This section must be signed by all owners.

NATURE OF PROPOSED PROJECT

State the full nature of the proposed project by marking the type of construction as indicated by the boxes and providing any other descriptive information on the lines below the boxes.

Access channel: Either the construction of a new channel or the improvement of an existing channel connecting to any river or stream in the state for the purpose of providing access by boat or otherwise to public or private facilities.

Bridge or culvert crossing: A bridge, culvert crossing or ford used to gain access to the opposite bank of a stream.

Building: Structures that will not be used for residential purposes; such as commercial buildings, public buildings, detached garages, pole barns, park shelters, etc.

Dam or impoundment: A structure used to create a pond or lake for recreational use, water supply, wildlife habitat, livestock watering, irrigation, etc.

Excavation: Removal or redistribution of material within the floodway; such as excavated ponds, borrow pits, gravel pits, grading, etc.

Fill material: Material used to raise the elevation of a tract of land located in the floodway of a stream, for buildings, recreational areas, etc.

Flood control: Flood control projects deal with the prevention of floods, the control, regulation, diversion or confinement of flood water, and the protection from flood water using sound and accepted engineering practice. Usually proposed in cooperation with local, state or federal agencies.

Levee: An embankment constructed along a stream to provide protection to adjacent land from flood waters.

Mining activity: Excavation, filling, or stream diversions as the result of mining or reclamation activities.

Outfall structure: Any structure used to outlet storm water or treated effluent to a stream.

Residence: A proposed place of residence that the owner or occupant will use for overnight lodging. This box should also be checked to indicate a proposed addition to an existing residence located within the floodway.

Seawall or bank protection: The placement of timber, steel piling, concrete seawalls, concrete slabs, rip rap, bank reshaping, cabled trees, or other materials to prevent erosion to a stream bank or the shore of a man-made reservoir. Do not use this application for seawalls along public freshwater lakes.

Utility: Any utility crossing over or under a stream, such as water mains, sanitary sewer mains, transmission lines, natural gas pipelines, etc.

PURPOSE OF THE PROPOSED PROJECT

Fully state the purpose, necessity and description of the proposed project. Maps, plans, sketches, cross-sections of the stream, etc. should be attached to this application to provide dimensions, depths, floor elevations, distances, slopes, widths, etc. to completely describe the proposed construction.

LOCATION OF THE PROPOSED PROJECT

State the county and civil township where the proposed project is to be located, the name of the body of water that the proposed project is to be located on or along, the nearest city or town and the U.S.G.S. quadrangle map (if known). Also state the township, range, section or grant, and quarter section (this information can usually be found on a property deed or land survey). Include information such as distances from major roads or highways, distances from bridges or other landmarks on the lines provided.

On the section entitled PROJECT SITE LOCATION SKETCH on the back page of the application, provide a sketch of the project area in reference to highways, towns, buildings, the body of water and other landmarks. A map can be attached to supplement the site location.

NAMES AND ADDRESSES OF AFFECTED LANDOWNERS

List all property owners who may be potentially affected by the proposed project. This list should at least include owners located upstream, downstream, across the stream and adjacent to the proposed project. If there are more than four affected owners, additional sheets may be attached to provide the information for the other owners.

STATEMENT OF AFFIRMATION

The applicant or the authorized representative of the applicant must sign and date the application, thereby affirming under the penalties for perjury that the information presented on the application is true, accurate and complete.

ENCLOSURES

All applications must be accompanied by two (2) sets of plans. Please check the appropriate box(es) to indicate the enclosure of additional item(s).

ADDITIONAL COMMENTS

This space is reserved for any additional comments, special considerations, or unusual circumstances regarding the proposed construction.

PROJECT SITE LOCATION SKETCH

On the back of the application is a section entitled PROJECT SITE LOCATION SKETCH. This section is to be used to provide a sketch of the project area in reference to highways, towns, buildings, the body of water and other landmarks. A map can be attached to supplement the site location.



PERMIT APPLICATION FOR CONSTRUCTION IN A FLOODWAY

State Form 42946 (1-89)

Approved by the State Board of Accounts, 1989

Mail To:

Indiana Department of Natural Resources
Division of Water
2475 Directors Row
Indianapolis, Indiana 46241
Telephone Number (317) 232-5660

AUTHORITY FOR PERMITS

IC 13-2-18.5 The Channels-Streams and Rivers Act and the Flood Control Act and its associated administrative rules require that
IC 13-2-22 any person wishing to perform any construction, excavation, or filling in or on a floodway must first file a written
310 IAC 6-1 application for a permit with the Natural Resources Commission. The application must include a nonrefundable fee of fifty dollars (\$50) in addition to plans and specifications for the proposed project. The application fee for the construction of an access channel under IC 13-2-18.5 is one hundred dollars (\$100) and is also nonrefundable. The applicant must receive the written authorization of the Commission prior to initiating work and must post and maintain the permit at the project site. The proposed work must be performed in accordance with the plans and specifications approved by the Commission.

Please Note: 1. Read the instructions thoroughly prior to completing this application.
2. Checks or Money Orders should be made payable to: Department of Natural Resources, Division of Water.
3. Please print or type.

APPLICANT / AGENT / ENGINEER / OWNER INFORMATION

Name of Applicant (Individual and spouse if jointly held)		Name of Agent / Engineer	
Address (Street, P.O. Box or Rural Route)		Address (Street, P.O. Box or Rural Route)	
City, state and ZIP code		City, state and ZIP code	
Home Telephone Number ()	Work Telephone Number ()	Home Telephone Number ()	Work Telephone Number ()

NAME / ADDRESS AND AUTHORIZATION OF PROPERTY OWNER

STATEMENT OF OWNER'S AUTHORIZATION

If the applicant is not the owner of the property where the proposed activity will be conducted, provide the name and address of the owner and complete the statement of owner's authorization.		I attest that I have been informed of the proposed project as outlined in this permit application. I understand that the project will be conducted on property under my ownership and authorize the applicant to proceed subject to the prior approval of the Natural Resources Commission.	
Name of Property Owner(s)		Signature of Owner Date	
Address (Street, P.O. Box or Rural Route)			
City, state and ZIP code			
Home Telephone Number ()	Work Telephone Number ()	Signature of Spouse if jointly held	Date

NATURE OF PROPOSED PROJECT

- | | | | |
|---|---|--|---|
| <input type="checkbox"/> Access Channel | <input type="checkbox"/> Dam or Impoundment | <input type="checkbox"/> Levee | <input type="checkbox"/> Seawall or Bank Protection |
| <input type="checkbox"/> Bridge or Culvert Crossing | <input type="checkbox"/> Excavation | <input type="checkbox"/> Mining Activity | <input type="checkbox"/> Utility |
| <input type="checkbox"/> Building | <input type="checkbox"/> Fill Material | <input type="checkbox"/> Outfall Structure | |
| <input type="checkbox"/> Other, please specify: | <input type="checkbox"/> Flood Control | <input type="checkbox"/> Residence | |

[illegible][illegible]

NAMES AND ADDRESSES OF AFFECTED LANDOWNERS	
List adjoining property owners which may be affected by the proposed project. Use additional sheets, if necessary. A failure to list each affected person may cause a permit issued by the Commission to later become voided.	
Name of Affected Landowner # 1	Name of Affected Landowner # 2
Address (Street, P.O. Box or Rural Route)	Address (Street, P.O. Box or Rural Route)
City, state and ZIP code	City, state and ZIP code
Name of Affected Landowner # 3	Name of Affected Landowner # 4
Address (Street, P.O. Box or Rural Route)	Address (Street, P.O. Box or Rural Route)
City, state and ZIP code	City, state and ZIP code

REQUIREMENT FOR ADDITIONAL INFORMATION AND PERMITS
<p>For work in floodway areas, a hydraulic report prepared by a registered professional engineer showing the impact of the proposed project on flood elevations and discharges may be required.</p> <p>Application made to and approval granted by the Natural Resources Commission does not in any way relieve the applicant of the necessity of securing easements or other property rights, permits and approvals from affected property owners and other local, state, and federal agencies.</p>

STATEMENT OF AFFIRMATION	
I hereby swear or affirm, under the penalties for perjury, that the information submitted herewith is to the best of my knowledge and belief, true, accurate and complete.	
Signature of Applicant or Authorized Representative	Date

ENCLOSURES			
<i>Please check the appropriate box:</i>			
<input type="checkbox"/> Site Plan <input type="checkbox"/> Specifications <input type="checkbox"/> Nonreturnable Photographs <input type="checkbox"/> Property Title and / or Deed	<input type="checkbox"/> Appraisal <input type="checkbox"/> Processing Fee: <input type="checkbox"/> Check or Money Order No. _____ <input type="checkbox"/> Amount \$ _____	<input type="checkbox"/> Drawings: <input type="checkbox"/> 8 1/2" x 11" <input type="checkbox"/> 11" x 17" <input type="checkbox"/> 24" x 36" <input type="checkbox"/> 36" x 42"	

[illegible]

PROJECT SITE LOCATION SKETCH

* Locate project site with references to roads, highways, buildings, or distinctive landmarks. (This portion of the application may be supplemented by additional maps or plats.)

OFFICE USE ONLY

Application Number	County Number	UTM North _____ East _____
Date of Application	Fee Submitted	Check Number
Date Application Received	Receipt Number	Agency Account Number
Office Comments:		

CONTENTS

Copy of Barbara Plampin Cover Letter

Native Plant List

Exotic (Alien) Plant List

for Rixie

18 East Road, Dune Acres
Chesterton, IN 46304
July 15, 1990

Mr. Doug Stevens
8533 Garfield Avenue
Munster, IN 46321

Dear Doug:

Thank you very much for inviting me to accompany you on last Sunday's expedition to the Dupont property on Kennedy Avenue. I thoroughly enjoyed the hike through the dunes and swales. Dupont certainly deserves applause for its clean-up efforts and for preserving these valuable habitats.

I enclose two lists, one of native plants and the other of exotics (aliens). To get help with controlling the latter, please write or call Mr. Thomas Post/ Jasper-Pulaski Fish and Wildlife Area/ RRI, Box 166/ Medaryville, IN 47957. The telephone number is (219) 843-4841. It is possible that the Indiana Dunes National Lakeshore will provide you with a copy of its in-house publication on exotics: Exotic Plants of Indiana Dunes National Lakeshore: A Management Review of Their Extent and Implications by Kenneth Klick, Sandra O'Brien, and Linda Lobik-Klick (March, 1989). To inquire, write Mr. Noel Pavlovic/ Science Division / INDU/ 1100 North Mineral Springs/ Porter, IN 46304. The telephone number is (219) 926-7561. Tell Noel what you want to do, and offer to pay for copying and postage.

I would very much like to see your article.

Again, thank you for providing a memorable expedition.

Sincerely yours,

Barbara E. Plampin
Barbara E. Plampin
(210) 787-9438

Enclosures

N.B. This list is by no means complete. You may want to check identities by using Swink and Wilhelm, Plants of the Chicago Region, Third Edition, The Morton Arboretum, Lisle, Illinois 60532 (sold at Indiana Dunes National Lakeshore Visitor Center off Kemil Road, locally, at \$14.95) or Peterson and McKenny, A Field Guide to Wild-flowers of Northeastern and Northcentral North America. A Visual Approach, Houghton Mifflin, Boston, 1968. (Perhaps there is a later edition.) I have used Swink and Wilhelm's common names which sometimes differ from Peterson's. By reading the names in parentheses in S and W, you can decode Peterson's names. The rating system comes from Swink and Wilhelm; roughly, 20 is top (very rare), 15 (rare), 10 (uncommon), and then by single numbers from 9 to minus 3. The minuses are aliens. I do not believe I saw any state-listed plants. You probably do have some state-listed sedges and other plants, so I hope that you will find a good sedge and grass person to go over the property slowly. The reward of clean water ought to be a variety of valuable and interesting plants growing in an unusual habitat. In particular, the wet places need exploring; they are not as dangerous as they look! It is best not to pick any tens, fifteens, or twenties.

<u>Rating</u>	<u>English and Botanical Names</u>
4	Water Plantain (<u>Alisma</u> sp.)
5	Little Bluestem Grass (<u>Andropogon scoparius</u>)
2	Thimbleweed (<u>Anemone quinquefolia interior</u>)
6	Ground Nut (<u>Apios americana</u>)
5	Beach Wormwood (<u>Artemesia caudata</u>)
4	Swamp Milkweed (<u>Asclepias incarnata</u>) -- Thanks for having me smell this one
0	Common Milkweed (<u>Asclepias syriaca</u>)
10	Butterfly Weed (<u>Asclepias tuberosa</u>)
8	White Wild Indigo (<u>Baptisia leucantha</u>)
? -	Beggar's Ticks (<u>Bidens</u> sp. or spp.)
7	Marsh Bellflower (<u>Campanula arparinoides</u>)
15	Indian Paint Brush (<u>Castilleja coccinea</u>)
7	Sand (Lance-leaved) Coreopsis (<u>Coreopsis lanceolata</u>). In this location, looking for <u>Coreopsis lanceolata villosa</u> might be worthwhile.)
5	Tall Coreopsis (<u>Coreopsis tripteris</u>)
1	Gray Dogwood (<u>Cornus racemosa</u>)
-	Hawthorn or Hawthorns (<u>Cratagus</u> sp. or spp.)
5	Sand Cyperus (<u>Cyperus filiculmis</u>)
4	Canada Wild Rye Grass (<u>Elymus canadensis</u>)
6	Marsh Shield Fern (<u>Dryopteris thelypteris pubescens</u>)
0	Horsetail (<u>Equisetum arvense</u>)
3	Daisy Fleabane (<u>Erigeron strigosus</u>)
9	Rattlesnake Master (<u>Eryngium yuccifolium</u>)
6	Common Boneset (<u>Eupatorium perfoliatum</u>)
2	Flowering Spurge: (<u>Euphorbia collorata</u>)
-	Bedstraws (<u>Galium</u> spp.)
5	Woodland Sunflower (<u>Helianthus divaricatus</u>)
10	Western Sunflower (<u>Helianthus occidentalis</u>)
8	Prairie Alum Root (like garden Coral Bells, only green-yellow) (<u>Heuchera richardsonii</u>)
8	Marsh St. HJohn's Wort (<u>Hypericum virginicum</u>)
-	Rushes (<u>Juncus</u> spp.)
? 8	Marsh Vetchling (<u>Lathyrus palustris</u>)

Rating

English and Botanical Names)

4	Round-headed Bush Clover (<u>Lespedeza capitata</u>)
15	Prairie (Wood) Lily (<u>Lilium philadelphicum andinum</u>)
6	Hoary Puccoon (<u>Lithospermum croceum</u>)
8	Hairy Puccoon (<u>Lithospermum canescens</u>)
8	Swamp Candles (<u>Lysimachia terrestris</u>) These are yellow.
-	Loosestrifes (<u>Lysimachia sp. or spp.</u>)
7	Winged Loosestrife (<u>Lythrum alatum</u>) The good purple one.
-	Waterhorehouhd (<u>Lycopus sp. or spp.</u>)
10	Hairy Canada Mayflower (<u>Maianthemum canadense interius</u>)
5	Horse Mint (<u>Monarda punctata villicaulis</u>)
7	Sand Primrose (<u>Oenothera rhombipetala</u>)
8	Sensitive Fern (<u>Onoclea sensibilis</u>)
5	Prickly Pear Cactus (<u>Opuntia humifusa</u>)
6	Prairie Phlox (<u>Phlox pilosa</u>)
4	Common Reed (<u>Phragmites communis berlandieri</u> --see other sheet!)
8	Ninebark (<u>Physocarpus opulifolius</u>)
-	Solomon's Seal (<u>Polygonatum Sp. or Spp.</u>)
4	Quaking Aspen (<u>Populus tremuloides</u>)
1	Wild Black Cherry (<u>Prunus serotina</u>)
5	Bracken Fern (<u>Pteridium aquilinum latiusculum</u>)
6	Black Oak (<u>Quercus velutina</u>)
1	Poison Ivy (<u>Rhus radicans</u>)
7	Wild Black Currant (<u>Ribes americanum</u>)
5	Pasture Rose (<u>Rosa carolina</u>)
1	Black-eyed Susan (<u>Rudbeckia hirta</u>)
7	Blue-leaved Willow (<u>Salix glaucophylloides glaucophylla</u>)
4	Black Willow (<u>Salix nigra</u>)
1	Elderberry (<u>Sambucus canadensis</u>)
7	Chairmaker's Rush (<u>Scirpus americanus</u>)
5	Great (Soft-stemmed) Bulrush (<u>Scirpus validus creber</u>)
4	Late Figwort (<u>Scrophularia marilandica</u>)
5	Marsh Skullcap (<u>Scutellaria epilobiifolia</u>)
5	Rosin Weed (<u>Silphium integrifolium</u>)
5	Starry False Solomon's Seal (<u>Smilacena stellata</u>)
10	Slender-leaved Goldenrod (<u>Solidago tenuifolia</u>)
7	Meadowsweet (<u>Spirea alba</u>)
8	Goat's Rue, Hoary Pea (<u>Tephrosia virginiana</u>)
2	Spiderwort (<u>Tradescantia ohiensis</u>)
1	Cattail (<u>Typha latifolia</u>) See other sheet.
7	Lance-leaved Violet (<u>Viola lanceolata</u>) Look here for other interesting plants such as Meadow Beauty (<u>Rhexia virginiana</u>) and <u>Gentiana Spp.</u>)
4	Riverbank Grápe (<u>Vitis riparia</u>)

Exotics (Alien Plants) Seen at Dupont Property on 7/8/90

N.B. This list is probably incomplete. I have starred the worst offenders.
Please check list of native plants for explanation of numbers.B.P.

Rating	English and Botanical Names
1	Yarrow, Milfoil (<u>Achillea millefolium</u>)
1.	Asparagus (<u>Asparagus officinalis</u>)
* * -2	Nodding, Musk Thistle (<u>Carduus nutans</u>). Swink and Wilhelm of the Morton Arboretum say this one "invades rapidly and is almost impossible to eradicate." Getting rid of ^{the} one or two ^{here} now will pay dividends later.
2	Showy Centaury (<u>Centaurea pulchellum</u>)
-3	Poison Hemlock (<u>Conium maculatum</u>)
- 1	Queen Anne's Lace (<u>Daucus carota</u>)
2	Helleborine Orchid (<u>Epipactis helleborine</u>). Our only successful immigrant orchid)
-1	Squirrel-tail Grass (<u>Hordeum jubatum</u>)
** -2 to -3	Honeysuckle Shrubs (<u>Lonicera</u> Sp. or Spp.) There is at least one kind of this invader. ^{here} There are native vining honeysuckles to look for here, but the shrubs are bad news. ^{alien}
2	Bird's Foot Trefoil (<u>Lotus corniculatus</u>)
-2	White Campion (<u>Lychnis alba</u>)
** 1	Purple Loosestrife (<u>Lythrum salicaria</u>) Some call this "Purple Plague." Its spread can endanger the Black Tern and the Canvasback Duck as well as native plants.
-3	White Sweet Clover (<u>Melilotus alba</u>)
-3	Wild Parsnip (<u>Pastinaca sativa</u>)
1	Timothy (grass) (<u>Phleum pratense</u>)
* -	Blue Grass(es) (<u>Poa</u> Sp or Spp.)
** -3	Glossy Buckthorn (<u>Rhamnus frangula</u>)
0	Bladder Campion (<u>Silene cucubalus</u>)
1	Common Mullein (<u>Verbascum thapsus</u>)
** 4	----- COMMON REED (PHRAGMITES COMMUNIS BERLANDIERI a.k.a. PHRAGMITES AUSTRALIS) Though some authorities do not consider this twelve-footer and alien, it is a vigorous invader of polluted -- and, perhaps, non-polluted land.
** 1 or 2	Cattail (Typha Spp.). Here's a native gifted at driving out better plants. It needs to learn to do a little more sharing of its turf.

Add:

0
-3
-3

Shepherd's Purse (Capsella bursa-pastoris)
Bittersweet Nightshade (Solanum dulcamara)
Wild Parsnip (Pastinaca sativa)



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

September 7, 1989

105 South Meridian Street
P.O. Box 6015
Indianapolis 46206-6015
Telephone 317-232-8603

Mr. O. J. Meyer, Environmental Coordinator
E.I. Dupont de Nemours and Company, Inc.
5215 Kennedy Avenue
East Chicago, Indiana 46312

Re: Vegetation Damage

Dear Mr. Meyer:

Thank you for responding to our inquiry regarding the dead vegetation at your facility. Gathering soil samples along the river bank and analyzing them for a complete Appendix IX scan and other products which were once produced on-site is appropriate. We appreciate Duponts' willingness to address our concerns in this manner.

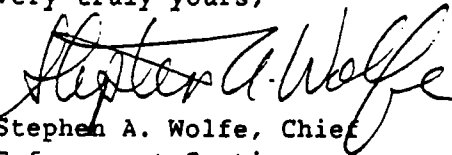
While discussing the matter with Dupont personnel on the telephone, my staff inquired as to Dupont's past disposal practices of products once produced on-site. As we understood the response, the disposal practices over the past twenty or so years have been in adherence to environmental laws. However, prior to that time, on-site disposal had occurred.

Our office is responsible for the surface and subsurface waters of the State. I believe we would be remiss in our duties if we did not request more information about the subject of buried products.

Therefore, we are requesting that Dupont advise us of past disposal practices of products that were once produced on-site and the measures taken by Dupont to ensure that no threat to the environment exists from the buried products.

Should you have any questions, please call Robert Bunner, II, at AC 317/232-8409.

Very truly yours,


Stephen A. Wolfe, Chief
Enforcement Section
Office of Water Management

bcc: R. M. Salemi, B-12252-A, Wilm.
N. Bell, B-12254, Wilmington
E. F. Hartstein, E. Chgo. (2)
J. N. Orban, E. Chgo.
File

8/30



E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
EAST CHICAGO, INDIANA 46312

CHEMICALS AND PIGMENTS DEPARTMENT CC: M. P. Kuss, IDEM, Indpls., IN
M. Mikulka, EPA Region 5, Chicago, IL.

July 24, 1989

Robert Bunner
IDEM
Office of Enforcement
105 S. Meridian
Indianapolis, IN 46225

Dear Robert:

SUBJECT: Vegetation Damage

Per our telephone discussion we are sending this response with preliminary findings and our proposed course of action.

In 1987 an abandoned outfall was filled in with brick and concrete rubble. This outfall had existed before the time of NPDES permitting and was abandoned many years ago as a result of outfall consolidation on the site. The vegetation on the edges of the outfall grew normally through the spring and early summer of 1988. We noticed wilting of some cottonwood and poplar trees late in the summer of 1988 and attributed this to the stress placed on the trees by the severe heat and drought and the fact that we had covered some of the root structure with the fill material.

The trees did not recover in the 1989 growing season, although there was substantial growth of other vegetation on and around the trees. The vegetation damage is very localized along the edge of the filled area.

We have agreed to take two soil samples one of which will be taken along the river bank at a site selected by Mike Kuss. The other will be taken nearby, adjacent to some of the affected trees. Both samples will be run for a complete Appendix IX scan. In addition we will analyze these for several herbicides and other products which were once produced on this site. It is expected that analysis of the samples will take a minimum of 6 to 8 weeks. We will keep you informed on progress and the results of these tests.

The damaged trees will be cut down and the healthy trees will be tagged. The area will be observed through the remainder of this season and monitored during the spring of 1990. We feel that, given the current growth of new vegetation in the area, whatever damaged the trees is not a persistent situation

If you have any questions concerning this matter or the course of action outlined please feel free to contact me.

Yours truly,

C. J. Meyer for OJM

O. J. Meyer
Environmental Coordinator
(219) 391-4653

SUMMARY
Preliminary Plans
E. I. DuPont de Nemours & Company
East Chicago, Indiana

Engineer - Company staff

Receiving Stream - Grand Calumet River tributary to the Indiana Harbor Ship Canal.

Water Uses - Industrial uses from the Grand Calumet River and the Indiana Harbor Ship Canal.

Discussion - This project is pursuant to the U. S. District Court Consent Decree of November 14, 1972. The Company has plans to consolidate nine of its outfalls to the Grand Calumet River into three outfalls. To accomplish this task the Company has separated its storm water from the process sewers, consolidated the present process sewers so as to provide chemical treatment, settling tanks, and sludge dewatering mechanisms. Upon completion, the plant will have one non-contact cooling water discharge outfall and two process water discharge outfalls. All other outfalls will be removed and plugged.

Storm water piping: The Company is consolidating its storm water into three sewer systems. Two of these storm sewers serving the office, silicate and chloride production area central shop and warehouse areas will discharge to a cinder filled area north of the plant. Each sewer will discharge to a 200 ft. by 5 ft. by 5 ft. trench dug in the cinders. It is estimated that each of these very porous fill areas could absorb the expected 7,500 gpm of storm water generated in rainfall intensity of 5 inches per hour for a duration of 10 minutes. The third storm sewer will convey a maximum of 3,300 gpm from the freon, sulfamic acid and sulfuric acid production areas to a sandy area east of the plants.

Sanitary sewers: All the dirty water from boiler houses, air compressors, etc., are being consolidated into a separate sewer which will be connected to the municipal sewerage system of the City of East Chicago. The sanitary wastes of the office are now going to the municipal sewers.

Outfall 001: This outfall will serve primarily the freon and acid manufacturing areas at the east end of the plant and will handle only non-contact cooling water.

Outfall 002: This outfall will serve the freon manufacturing, the sulphuric acid manufacturing, the sulfamic acid manufacturing and the agriculture chemical manufacturing areas.

In the freon manufacturing complex ion exchange regenerant, waste acid and waste caustic will be blended in a neutralization tank with hydrated lime, directed to a steel settling tank (a filter may be added at a later date) and the supernatant pumped through two of three cartridge pressure filters for clarification of the effluent. Calcium fluoride will be produced as a precipitate.

E. I. DuPont de Nemours & Co.

The effluents from the agricultural manufacturing facilities, the freon facilities and the sulfuric acid will then combine in one common sewer, where sulphuric acid or sodium hydroxide will be added to achieve pH control between 6.0 to 8.5. Continuous monitoring equipment will be provided for pH, flow, temperature and continuous sampling for the required parameters. A flow of 1,400 gpm maximum is expected from this outfall.

Outfall 003: This outfall will serve the chlorides and silicate products manufacturing area. This consolidation of sewers and process changes will provide pH adjustment flocculation, thickening and filtration prior to its discharge to the river.

This will be accomplished by addition of sodium hydroxide and lime to form a floc. A 30 foot diameter thickener with a 7 foot depth will permit the supernatant to be withdrawn and the sludges vacuum filtered by two 10 feet in diameter by 10 feet long rotary filters. These filters will employ diatomaceous earth for the filter media. Filtrate and thickener supernatant will then undergo a final pH adjustment, be filtered through pressure sand filters and discharged to the river.

Strong waste acids from Ludox ion exchangers will be neutralized with lime to produce a calcium sulfate precipitate and will reduce the existing sulfate load to the river. The neutralized effluent will be discharged to the outfall 003 treatment system. A vacuum filter will be provided for solids dewatering.

As in the other outfall continuous monitoring equipment will be provided to measure pH, flow, temperature and continuous sampling. The outfall will discharge a maximum flow of 600 gpm. All piping will be of a polyester material to reduce corrosion.

Sludge disposal: The plant will generate approximately 360,000 cubic feet of sludge per year consisting mainly of calcium sulfate, silicates, calcium hydroxide and calcium flouride. It is proposed to landfill this dewatered material on a diked 7-acre site northeast of the plant formerly used as a calcium sulfate from an old sodiumphosphate operation. The area will be filled in one acre plots, filling each plot to a depth of 6 feet and covered with earth. It is expected that the fill area will last approximately 5 years.

Recommendations - That the preliminary plans be considered satisfactory with the following conditions:

1. That final plans be submitted and approval be obtained from the Board prior to construction of the waste treatment facilities.
2. That additional equipment be included if the proposed facilities fail to provide adequate treatment.
3. That the Company submit to the Board monthly effluent monitoring report in accordance with the requirements established in sections (f) and (g) in the Consent Decree signed November 14, 1972.

The plans were submitted on February 5, 1973.

RJCleaton/sjr
2/20/73

SUBJECT

River H2O Quality

WORKS

1975-79 Report - Ind. State Board of Health

GRAND CALUMET

DATE

19

GCR - Station 37

~~1975-1979~~

		LOW	HIGH	AVG	
3					
4	NH ₃ mg/l	0.10	5.3	3.2	(5)
5	AS "	0.01	0.01	0.01	(3)
6	BOD "	2.0	16	5.2	(5)
7	COD "	11	54	22	(4)
8	Cd "	0.01	0.01	0.01	(3)
9	Cl ⁻ "	23	47	34	(5)
10	Cr (TOT) "	0.01	0.12	0.02	(4)
11	COLIFORM #/100ML (FECAL)	110	130000	30359	(5)
12	Cu mg/l	0.02	0.06	0.02	(3)
13	Cyanide "	0.001	1.2	0.35	(4)
14	F "	0.5	2.4	0.9	(3)
15	Fe "	0.02	2.6	0.79	(4)
16	Pb "	0.02	0.09	0.03	(5)
17	MN "	0.09	0.22	0.11	(2)
18	Hg PPB	0.1	3.3	0.21	(5)
19	Ni mg/l	0.02	0.02	0.02	(3)
20	NO ₃ "	0.1	2.2	0.5	(5)
21	N "	0.1	6.2	1.1	(3)
22	Oil/grease "	1.0	40	9.6	(4)
23	PCB PPB	0.01	0.03	0.02	(2)
24	pH (field)	6.6	7.9	7.1	(5)
25	" (lab)	6.4	8.0	7.3	(5)
26	Phenol mg/l	0.005	0.133	0.03	(3)
27	P "	0.04	1.2	0.22	(5)
28	Phthalates PPB	0.5	0.57	0.52	(2)
29	HIO mg/l	14	25	19	(2)
30	Susp. Solids "	5	28	14	(4)
31	Volatile " "	2	17	10	(3)
32	Spec. Cond. (microhmo/cm)	320	530	449	(5)
33	SO ₄ mg/l	32	155	50	(4)
34	ZN "	0.05	0.18	0.11	(4)
35	DO (FIELD)	1.8	12.0	5.9	(5)
36	K mg/l	5	12	8.4	(2)

() = # YRS.

TITLE OF PROJ OR STUDY _____

PROJ. OR STUDY NO. _____

SUBJECT _____

WORKS _____

River A20 Quality
1975-79 Reports - Ind. State Board of Health

DATE _____ 19 _____

GCR - Station 37

	<u>1975</u>	<u>Low</u>	<u>High</u>	<u>AVG</u>
NH ₃	mg/l	2.8	4.6	3.4
As	"	0.01	0.01	0.01
BOD	"	2.2	5.5	4.0
COD	"	11	25	19
Cd	"	.01	.01	.01
Cl ⁻	"	26	42	34
Cr (TOT)	"	.01	.01	.01
COLIFORM #/100ML (FECAL)		110	130,000	21131
Cu	mg/l	.02	.02	.02
Cyanide	"	1001	1.2	.483
F	"	.6	1.6	.8
Fe	"	.6	1.7	1.0
Pb	"	.02	.06	.03
MN	"	.09	.22	.12
Hg	PPB	.10	.50	.21
Ni	mg/l	.02	.02	.02
NO ₃	"	.2	.8	.4
N	"	.1	6.2	1.4
Oil/grease	"	1.4	40	13.9
PCB	PPB	.01	.03	.02
pH (field)		6.8	7.9	7.4
" (lab)		6.4	8.0	7.2
Phenol	mg/l	1005	1133	1037
P	"	.04	.50	.19
Phthalates	PPB	.50	.57	.53
Na	mg/l	16	23	19.7
Susp. Solids	"	6	24	13
Volatile	"	2	12	6
Spec. Cond. (micromhos/cm)		350	520	441
SO ₄	mg/l	40	155	58
ZN	"	.08	.17	.11
DO (field)		4.4	9.8	6.9
K	mg/l	5	11	5

River H2O Quality

1975-79 Reports - Ind. State Board of Health

DATE

19

GCR - Station 37

1976	Low	High	Avg
NH3 mg/l	.10	5.3	3.1
As "	.01	.01	.01
BOD "	2.6	6.6	4.5
COD "	13	41	21
Cl ⁻ "	.01	.01	.01
Cl ⁻ "	24	42	34
Cr (TOT) "	.01	.07	.02
Coliform #/100ML (fecal)	90	68000	11916
Cu mg/l	.02	.06	.025
Cyanide "	.09	.72	.39
F "	.4	1.0	.7
Fe "	.6	2.6	1.1
Pb "	.02	.07	.036
MN "	.07	.16	.11
Hg PPB	.1	.1	.1
Ni mg/l	.02	.02	.02
NO3 "	.3	1.4	.7
N "	.1	2.9	.6
Oil/grease "	5.3	16	10.5
PCE PPB	.02	.02	.02
pH (field)	6.6	7.3	6.9
" (lab)	7.2	7.6	7.3
Phenol mg/l	1008	1042	1027
P "	108	1.2	.34
Phthalates PPB	.5	.5	.5
NO ₂ mg/l	14	25	19
Susp. Solids "	5	24	14
Volatile " "	2	12	7
Spec. Cond. (micromho/cm)	380	500	425
SO4 mg/l	36	64	47
ZN "	.06	.15	.10
DO (FIELD)	3.6	12	6.9
K mg/l	6	12	8.7

River H₂O Quality

1975-79 Reports - Ind. State Board of Health

DATE

19

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

GCR - Station 37

	1977	Low	High	Avg
NH ₃	mg/l	2.4	5.1	3.4
As	"	.01	.01	.01
BOD	"	3.2	16	7.3
COD	"	20	54	29
Cd	"	.01	.01	.01
Cl ⁻	"	23	38	29
Cu (TOT)	"	.01	.12	.03
COLIFORM #/100ML (KIAL)		470	85000	32977
Cu	mg/l	.02	.02	.02
Cyanide	"	.001	1.0	.335
F	"	—	—	—
Fe	"	15	2.4	1.3
Pb	"	.02	.09	.05
MN	"	—	—	—
Hg	PPB	.1	.2	.118
Ni	mg/l	.02	.02	.02
NO ₃	"	.1	.4	.3
N	"	1.0	1.7	1.3
Oil/grease	"	3.2	19	9.8
PCB	PPB	—	—	—
pH (field)		6.8	7.2	7
" (lab)		6.9	7.4	7.2
Phenol	mg/l	.005	.04	.019
P	"	.14	.55	.23
Phthalates	PPB	—	—	—
Na	mg/l	—	—	—
Susp. Solids	"	9	40	20
Volatile	"	—	—	—
Spec. Cond. (microhm/cm)		330	520	438
SO ₄	mg/l	32	55	46
ZN	"	.05	.18	.12
DO (FIELD)		1.8	9.9	5.5
K	mg/l	—	—	—

River H₂O Quality
1975-79 Reports - Ind. State Board of Health

COMPUTER

DATE

19

GCR - Station 37

Disregard cross-outs - Computer data entry errors.
1978 Pgs 31-126 INCL. ERRATA
Sheet in 1979 Report

	1978	Low	High	AVG
1				
2				
3				
4	- NH3 mg/l	2.2	4.5	3
5	As "	-	-	-
6	✓ BOD "	2	8.6	5.3
7	COD "	18	36	25
8	Cd "	-	-	-
9	✓ Cl ⁻ "	25	45	36
10	Co (TOT) "	0.1	0.4	0.8
11	✓ COLIFORM #/100ML (REAL)	380	63000	25133
12	Co mg/l	-	-	-
13	Cyanide "	1	.78	.32
14	Fe "	-	-	-
15	Fe "	.6	1.3	1.1
16	✓ Pb "	.02	.05	.03
17	Mn "	-	-	-
18	✓ Hg PPB	.1	.9	.236
19	Ni mg/l	-	-	-
20	✓ NO3 "	.2	2.2	.5
21	N "	-	-	-
22	Oil/grease "	1.0	6.8	2.7
23	PCB PPB	-	-	-
24	✓ PH (field)	6.9	7.3	7.1
25	" (Lab)	6.7	7.7	7.3
26	Phenol mg/l	-	-	-
27	✓ P "	.12	.21	.17
28	Phthalates PPB	-	-	-
29	NO mg/l	-	-	-
30	✓ Susp. Solids "	12	22	16
31	✓ Volatile " "	17	17	17
32	✓ Spec. Cond. (microhm/cm)	420	520	465
33	SO4 mg/l	39	56	41
34	ZN "	106	.24	.15
35	✓ DO (field)	2.4	9.2	5.1
36	K	-	-	-

GCR - Station 37

1979	Low	High	Avg
NH ₃ mg/l	1.1	4.6	2.9
As	—	—	—
BOD	3.8	6.7	5.0
COD	16	30	20
Cd	—	—	—
Cl ⁻	26	47	35
Cr (TOT)	.01	.05	.02
Coliform #/100ML (FAL)	25000	100000	60636
Cu mg/l	—	—	—
Cyanide	.076	.78	.20
F	—	—	—
Fe	.7	1.4	1.0
Pb	.02	.06	.02
MN	—	—	—
Hg PPB	.1	3.3	.39
Ni mg/l	—	—	—
NO ₃	.4	1.0	.5
N	—	—	—
Oil/grease	1	11	4.1
PCB PPB	—	—	—
pH (field)	7.1	7.7	7.3
" (lab)	6.4	7.8	7.3
Phenol mg/l	—	—	—
P	.11	.25	.16
Phthalates PPB	—	—	—
Na mg/l	—	—	—
Env. S. L. S.	8	28	14
Volatiles	—	—	—
Spec. Cond. (micro mho/cm)	390	530	477
SO ₄ mg/l	44	58	50
ZN	.05	.11	.07
DO (FIELD)	2.3	9.5	5.3
K mg/l	—	—	—



TITLE OF PROJ. OR STUDY _____ PROJ. OR STUDY NO. _____

SUBJECT _____ WORKS _____

COMPUTER _____ DATE _____ 19____

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

1

2

GRAND CALUMET RIVER FLOW

3

4

US GEOLOGICAL SURVEY

5

6

31 INSTANTANEOUS FLOW RATES AVE = 711 CFS MAX = 897 CFS MIN = 407 CFS
SEPT 75 - FEB 81 = 460 MGD = 580 MGD = 263 MG

7

8

9

10

14 INSTANTANEOUS FLOW RATES

11

9/71 - 11/72

AVE = 940 CFS MAX = 1100 CFS MIN = 740 CFS
= 607 MGD = 711 MGD = 478 MG

12

13

14

15

16

17

18

19

20

21

22

23

24

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32

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35

36

37

TITLE OF PROJ. OR STUDY NPDES LIMIT RELATION PROJ. OR STUDY NO. _____SUBJECT GCR WATER QUALITY WORKS _____COMPUTER _____ DATE 19 _____

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

WORST CASE

MINIMUM GCR FLOW RATE = 263 MGD

MAXIMUM SURGE TANK SUSPENDED SOLIDS = 1800 PPM

MAXIMUM OOS OUT FLOW = 620 GPM = .89 MGD

$$\frac{.89 \text{ MM GAL}}{\text{DAY}} \times \frac{3.785 \text{ L}}{\text{GAL}} \times \frac{1 \text{ GM}}{1000 \text{ MG}} \times \frac{1 \text{ lb}}{453.6 \text{ gm}} \times \frac{1800 \text{ MG}}{\text{L}} = 13,410 \text{ lbs/DA.}$$

~~Worst Case~~ GCR QUALITY

$$\frac{263 \text{ MGD}}{\text{DAY}} \times \frac{3.785 \text{ L}}{\text{GAL}} \times \frac{1 \text{ GM}}{1000 \text{ MG}} \times \frac{1 \text{ lb}}{453.6 \text{ gm}} \times \frac{14 \text{ mg}}{\text{L}} = 30,724 \text{ lbs DAY}$$

TOTAL = 44,140 lbs/DAY OR 20 mg/l

AVERAGE CASE

GCR FLOW = 460 MGD

SURGE TANK SS = 850 mg/l

OOS OUTFALL FLOW = .6 MGD

OOS ADDITION = 4255 lbs/DAY

GCR QUALITY = 53,740 lbs/DAY

TOTAL = 57,995 lbs/DAY OR 15 mg/l

~~BEST CASE~~~~MAX GCR FLOW = 520 MGD~~



TITLE OF PROJ. OR STUDY _____

PROJ. OR STUDY NO. _____

SUBJECT _____

WORKS _____

DATE _____

COMPUTER _____

19 _____

28 _____

27 _____

26 _____

25 _____

24 _____

23 _____

22 _____

21 _____

20 _____

19 _____

18 _____

17 _____

16 _____

15 _____

14 _____

13 _____

12 _____

11 _____

10 _____

9 _____

8 _____

7 _____

6 _____

5 _____

4 _____

3 _____

2 _____

1 _____

0 _____

003 Outfall

Current Data

GRAND CALUMET RIVER

SUSPENDED

SOLIDS

HIGH

mg/l
LOW

AVE

1975	24	6	13
1976	24	5	14
1977	40	9	20
1978	22	12	16
1979	28	8	14

Sulfates

1975	55	40	58
1976	64	36	47
1977	55	32	46
1978			
1979	58	47	50

pH (field)

1975
1976
1977
1978
1979

GRAND CALUMET RIVER FLOW

NE 60 MGD

14 MG/L TOTAL SUSPENDED SOLIDS

60.106 GAL DAY	3.785 GAL	GM	116	14 MG	= 7007 $\frac{lb}{DAY}$
		1000 MG	453.6 GM		

ADDITION OF 5500 lb/day SUSPENDED SOLIDS \rightarrow 25 $\frac{MG}{L}$

EVER 300 MGD

ASSUME 300 MGD \rightarrow 35,046 lb/day

ADDITION OF 5500 lb/day 40546 lb/day \rightarrow 16.2 $\frac{MG}{L}$

ASSUME 500 MGD \rightarrow 58,410 $\frac{lb}{DAY}$

ADDITION OF 5500 $\frac{lb}{DAY}$ 63910 $\frac{lb}{DAY}$ \rightarrow 15.3 $\frac{MG}{L}$

ASSUME 800 MGD \rightarrow 93,456 $\frac{lb}{DAY}$

ADDITION OF 5500 $\frac{lb}{DAY}$ 98956 $\frac{lb}{DAY}$ \rightarrow 14.8

1.10⁹ GPD \rightarrow 116,820 lb/day
122,321 lb/day \rightarrow 14.6 $\frac{MG}{L}$

JACK'S SEPT 27 1980
BOOK

JOHN'S DATA SEPT 17

INDIANA STATE BOARD OF HEALTH
DIVISION OF WATER POLLUTION CONTROL
1976 WATER QUALITY ANNUAL REPORT
WATER QUALITY MONITORING - RIVERS + STREAMS
STATION GCR 41

GRAND CALUMET R. - GARY
BRIDGE ON U.S. HIGHWAY 12, GARY

SAMPLING DATE	ALKALINITY	AMMONIA NIA	ARSENIC	BOD	BARIUM	COD	CADMIUM	CHLORIDES	CHROME HEX	CHROME TOTAL	COLOIFORM TOTAL	COPPER
					(MG/L)						(NUMBER/100ML)	(MG/L)
01/23/79		6.00		10.0		32		34		.08	160000	
03/20/79		2.60		3.7		11		26		.01	32000	
04/17/79		2.60		4.2		37		35		.04	33000	
05/15/79		2.90		5.7		25		32		.01	67000	
06/26/79		2.50		3.3		14		35		.04	11000	
08/01/79		1.30		47.0		14		23		.08	2400	
08/28/79		1.80		5.2		15		29		.01	2300	
09/25/79		2.20		10.0		25		24		.01	180000	
10/30/79		1.70		3.7		15		27		.06	38000	
11/27/79		1.30		3.7		14		31		.06	72000	
12/18/79		1.60		5.9		14		30		.02	31000	
MINIMUM		1.30		3.3		10		23		.01	2300	
MAXIMUM		5.00		47.0		39		35		.08	180000	
AVERAGE		2.41		4.3		22		30		.04	204477	
GEO. MEAN		2.18		6.1		20		29		.03	35265	
MEDIAN		2.20		5.2		14		30		.04	33000	

SAMPLING DATE	DO FIELD	FLUORIDE	HARDNESS	IRON	LEAD	MANGANESE	MERCURY	NICKEL	NI-TRATES	NITROGEN	THRESHOLD	Oil GREASE	PCB	PH
							(PPB)				MG/L		(PPB)	
01/23/79	9.1			1.0	.020		.100		.5		2.9		7.2	7.2
03/20/79	4.4			.7	.020		.100		.5		1.3		7.3	7.2
04/17/79	7.8			1.2	.020		.100		.6		2.7		7.5	7.1
05/15/79	6.9			.8	.020		.100		.4		3.1		7.4	7.2
06/26/79	5.1			.8	.020		.100		.6		1.0		5.5	5.5
08/01/79	5.5			.7	.020		.100		.6		5.3		7.3	8.1
08/28/79	5.1			1.0	.020		.100		.5		4.9		7.8	7.8
09/25/79	5.3			.9	.020		.100		.5		9.3		7.2	7.2
10/30/79	7.4			1.6	.020		.100		.8		2.3		7.5	7.6
11/27/79	8.3			.9	.020		.100		.8		9.9		7.1	7.1
12/18/79	10.6			.9	.020		.100		.5		3.8		7.3	7.7
MINIMUM	5.1			.7	.020		.100		.4		1.0		7.2	5.5
MAXIMUM	10.6			1.6	.020		.100		.8		9.3		7.5	8.1
AVERAGE	7.3			.9	.020		.100		.6		4.1		7.3	7.4
GEO. MEAN	7.1			.9	.020		.100		.6		3.3		7.3	7.4
MEDIAN	7.4			.9	.020		.100		.5		3.1		7.3	7.3

SAMPLING DATE	PHENDL	PHOSPHORUS	PHOSPHATE	PHOSPHATE	SELENIUM	SODIUM	SOLIDS	SPEC. COND.	SULFATE	TEMP.	TURBIDITY	ZINC
	(MG/L)	(PPB)	(PPB)	(PPB)	(MG/L)	(MG/L)	SUSP. VOL. TOTAL	(MICRO-1)	(MG/L)	(DEG. C)	(1000000)	(MG/L)
01/23/79	.04						13	540	46.0	10		.070
03/20/79	.05						7	360	43.0	14		.020
04/17/79	.16						10	490	50.0	19		.060
05/15/79	.14						22	460	41.0	20		.090
06/26/79	.12						7	440	35.0	27		.090
08/01/79	.08						7	380	39.0	30		.060
08/28/79	.04						25	340	43.0	28		.030
09/25/79	.20						14	380	43.0	27		.040
10/30/79	.07						15	420	38.0	21		.030
11/27/79	.55						13	460	42.0	15		.030
12/18/79	.07						20	510	40.0	10		.030
MINIMUM	.04						7	340	35.0	10		.020
MAXIMUM	.55						25	540	50.0	30		.090
AVERAGE	.14						14	435	41.8	20		.050
GEO. MEAN	.10						13	430	41.6	19		.044
MEDIAN	.08						13	440	42.0			.040

NOTE: PARAMETER VALUES WITH A (-) SIGN FOLLOWING THE NUMBER INDICATES THAT THE OBSERVED VALUE WAS LESS THAN THE NUMBER INDICATED
PARAMETER VALUES OF ALL NINES (999.99) INDICATES THAT THE OBSERVED VALUE WAS MORE THAN THE NUMBER INDICATED



United States Department of the Interior

GEOLOGICAL SURVEY
Water Resources Division
6023 Guion Road, Suite 201
Indianapolis, Indiana 46254
317-927-8640



February 21, 1985

John Orban
DuPont Chemical
5212 Kennedy Avenue
East Chicago, Indiana 46312

Dear John:

Enclosed for your information are the data collected during the 24-hour sampling of the Grand Calumet River done by our agency October 3 and 4 of last year. If you have questions, please contact me by phone at (317)-927-8640 or by writing to the above address.

For the District Chief.

Sincerely,

Charles G. Crawford
Hydrologist

Enclosures

WATER QUALITY SURVEY OF GRAND CALUMET RIVER OCT 3+4, 1984

		RIVER COOLING WATER			
	CLINE	001	002	003	KENNEDY
	C5	DP1	DP2	DP3	C6
Ave Dissolved O ₂	6.7	7.4	8.5	7.6	6.1
Low " "	6.2	7.2	8.3	7.4	5.3
High " "	7.4	7.6	9.0	8.0	6.6
Ave Temp. °C	19.2	26.3	24.3	29.6	19.8
Low " "	17.9	25.0	23.5	23.5	18.0
High " "	20.7	28.0	25.0	31.0	21.5
Ave pH	7.2	N.D.	7.6	7.5	N.D.
Low "	6.8	N.D.	7.4	7.5	N.D.
High "	7.4	N.D.	8.0	7.6	N.D.
TSP. Solids	<1	6	4	4	3
Diss. Solids	326	284	1240	9100	306
Chloride	44	44	220	32	44
Fluoride	0.4	0.4	1.1	0.7	0.4
Sulfate	40	63	190	5900	49
Hardness	140	180	120	320	140
5 Day BOD	3.7	2.1	1.0	1.2	2.8
Total BOD	11.0	12.0	25.0	4.0	10.0
Filtered 5 Day BOD	N.D.	N.D.	N.D.	N.D.	N.D.
Filtered Total BOD	N.D.	N.D.	N.D.	N.D.	N.D.
Phenol	20	16	<1	5	2
Cyanide	0.01	0.01	<0.01	<0.01	<0.01

CONTINUED

	CLINE	001	002	003	KENNEDY	
	C5	DP1	DP2	DP3	C6	
TOT NH ₃ + ORGANIC N	1.0	1.6	^① 83.0	0.7	1.4	
NH ₃ AS N	0.77	1.40	1.30	0.13	0.85	
NITRITE AS N	0.09	0.12	0.01	0.01	0.10	
NITRATE + NITRITE AS N	1.60	1.60	0.18	0.10	1.50	
ORTHOP P	0.04	0.03	<0.01	<0.01	0.03	↑ mg/l (ppm)
TOTAL P	0.13	0.06	<0.01	<0.01	0.04	↑
TOT CHROMIUM	2	1	8	7	2	↓
HEXAVALENT CHROME	<1	<1	<1	<1	<1	
TOTAL COPPER	8	1	5	7	3	mg/l (ppb)
TOTAL IRON	3600	1700	1200	1000	740	
TOTAL LEAD	42	15	10	28	5	
TOTAL MERCURY	0.2	0.3	0.2	<0.1	0.3	
TOTAL NICKEL	9	6	12	8	7	
TOTAL ZINC	100	410	40	90	40	

TOT NH₃ + ORGANIC N - SULFAMIC WILL SHOW UP IN THIS TEST AT 002

cc: C. C. Quarles, ICD, Wilmington
P. G. Gilby, " "
E. W. Schall, Legal, "
(V. G. Koppin, ICD, East Chicago
(R. G. Bell, " " "
F. S. Cooper, " " "

East Chicago, Indiana
August 27, 1974

To: ~~(L. A. Kremer)~~ *LAK*
(File: TAC 12.22)

From: J. T. Sixsmith *JTS*

WATER POLLUTION - INDIANA SAMPLING SURVEY-
ANALYTICAL RESULTS

(Ref: JTS to LAK, 7/9/74)

As described in the above reference the Indiana Board of Health conducted a plant outfall survey on June 25-26, 1974. Originally we did not plan to analyze our portions of the samples. However, we later decided to analyze for certain metals so that the data would be available if required. These analyses along with estimated net loadings are attached. The data show what we would have expected, namely measureable discharges from 002 outfall of ammonia, fluoride and chromium.

The other parameters seem to be within the sampling and flow estimation variability such that the plant does not appear to be discharging other parameters in significant amounts.

No further action is planned on this survey unless the State of Indiana contacts us.

JTS:crc

INDIANA SURVEY SAMPLES

Flows Used in Calculations of Loadings - 001-3100 GPM (All River Water)
 002-1080 GPM (460 River Water, 520 Lake)
 003- 320 GPM (All Lake Water)

PARAMETER	RIVER INTAKE mg/l	001 OUTFALL				002 OUTFALL				003 OUTFALL			
		mg/l	LBS/DAY DISCHARGE	LBS/DAY INTAKE	NET LBS/DAY	mg/l	LBS/DAY DISCHARGE	LBS/DAY INTAKE (1)	NET LBS/DAY	mg/l	LBS/DAY DISCHARGE	LBS/DAY INTAKE (1)	NET LBS/DAY
NH ₃ as N	2.4	2.5	93	89	4	82	1060	13	1050	0.08	0.3	0	0.3
Fluoride (1)	1.3	0.7	26	48	-22	3.3	43	7+6	30	1.1	4.2	3.8	0.4
Zinc	3.3	3.9	145	123	22	0.80	10	18	-8	0.06	0.2	0	0.2
Chromium	<.02	<.02	<0.7	<0.7	0	0.33	4.3	<0.1	4.3	<.02	<.08	0	<.08
Copper	<.02	<.02	<0.7	<0.7	0	<.02	<0.3	<0.1	0	<.02	<.08	0	<.08
Iron	2.7	1.8	67	100	-33	0.9	12	15	-3	0.3	1.2	0	1.2
Arsenic	<.03	<.03	<1.1	<1.1	0	<.03	<0.4	<0.2	0	<.03	<0.1	0	<0.1
Cadmium	0.012	0.011	0.4	0.4	0	0.008	0.1	0.07	0.03	0.016	0.06	0	0.06
Nickel	0.02	<.01	0.4	0.7	-0.3	<.01	<0.1	0.1	0	0.03	0.1	0	0.1
Lead	0.24	0.23	8.6	8.9	-0.3	0.22	2.9	1.3	1.6	0.28	1.1	0	1.1
Mercury	0.0001	<.0001	<.004	0.004	0	0.0001	0.001	0.0006	<.0004	<.0001	<.0004	0	<.0004

(1) Assumed 1 mg/l concentration of fluoride in lake water. All other parameters were assumed as zero concentration in lake water.



E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED

EAST CHICAGO, INDIANA 46312

CHEMICALS AND PIGMENTS DEPARTMENT

cc: Carla Miller, IDEM
Robert Tolpa, USEPA
Dan Olsen, ECSD
Norm Bell, DuPont, Wilm.
Pam Meitner, DuPont, Wilm.
Gene Hartstein, E. Chgo.

May 3, 1990

Eli Bromley
Sanitary District of Hammond
5413 Columbia Avenue
Hammond, Indiana 46312

Re: Your letter titled "Contamination of Sediments in the
Grand Calumet River:

Dear Mr. Bromley:

Your letter poses the possibility of DuPont being the source of the organic chemicals, pesticides and herbicides found in the sediments of the Grand Calumet River. The summary table which you included (copy attached) gave analytical results for selected organic compounds.

We have reviewed the information you provided and compared it to our plant history. None of the chemicals listed (with the exception of PCB) was ever produced or handled on this site. Concerning PCB, our use was limited to transformer oil. The list which you provided contains quite common pesticides which are (or were) in wide use in the area. Land application and subsequent run-off would account for their presence in the sediments.

The direction of the flow of the Grand Calumet River and the volume of the flows in the branches make it highly improbable that material from our site would be found at the locations you sampled and analyzed. The map attached shows that the east branch flow, together with the flow from the East Chicago Sanitary District, combine and flow north into the Indiana Harbor Canal. The effluent from the Hammond Sanitary District flows west toward the Lake Calumet Region.

We intend to closely follow the river dredging project. If DuPont is responsible for part of the problem, we expect to be a part of the solution. Please feel free to call at any time. My telephone number is (219) 391-4653.

Sincerely

O. J. Meyer
Environmental Coordinator

OJM/pjp
Attachments

SANITARY DISTRICT of HAMMOND

5143 COLUMBIA AVENUE
TELEPHONE 853-6412 - 13 - 14 - 88
HAMMOND, INDIANA 46320

Board of Sanitary Commissioners
GILBERT DeLANEY
WILLIAM MILLER
RONALD L. HUNTER
TERRANCE MEHAN
STAN DOSTATNI



JOSEPH ALLEGRETTI
Attorney
JAN VERKAIK
District Manager
ELI BROMLEY
Superintendent

TO: E. I. DUPONT DE NEMOURS AND CO.
EAST CHICAGO. INDIANA 46312

RE: CONTAMINATION OF SEDIMENTS IN THE GRAND CALUMET RIVER

GENTLEMEN:

The Hammond Sanitary District is concerned about the contamination of sediments in the Grand Calumet River. Hammond Sanitary District is about to embark on a program to dredge the river and has conducted analysis of the sediments along its length. Fairly high concentrations of Organic Chemicals such as Pesticides, Herbicides, and others were found in quantities high enough to make it an extremely expensive disposal program.

As the Dupont Hazardous Waste site is on the river less than two miles from the sampling locations, it is certainly possible that the Dupont Site is the source of these organic chemicals. If this is found to be the case, then Dupont, as a responsible party, should participate with the District in the clean up and disposal of the contamination.

Hammond Sanitary District stands ready to cooperate with Dupont in resolving this problem.


Eli Bromley
Superintendent

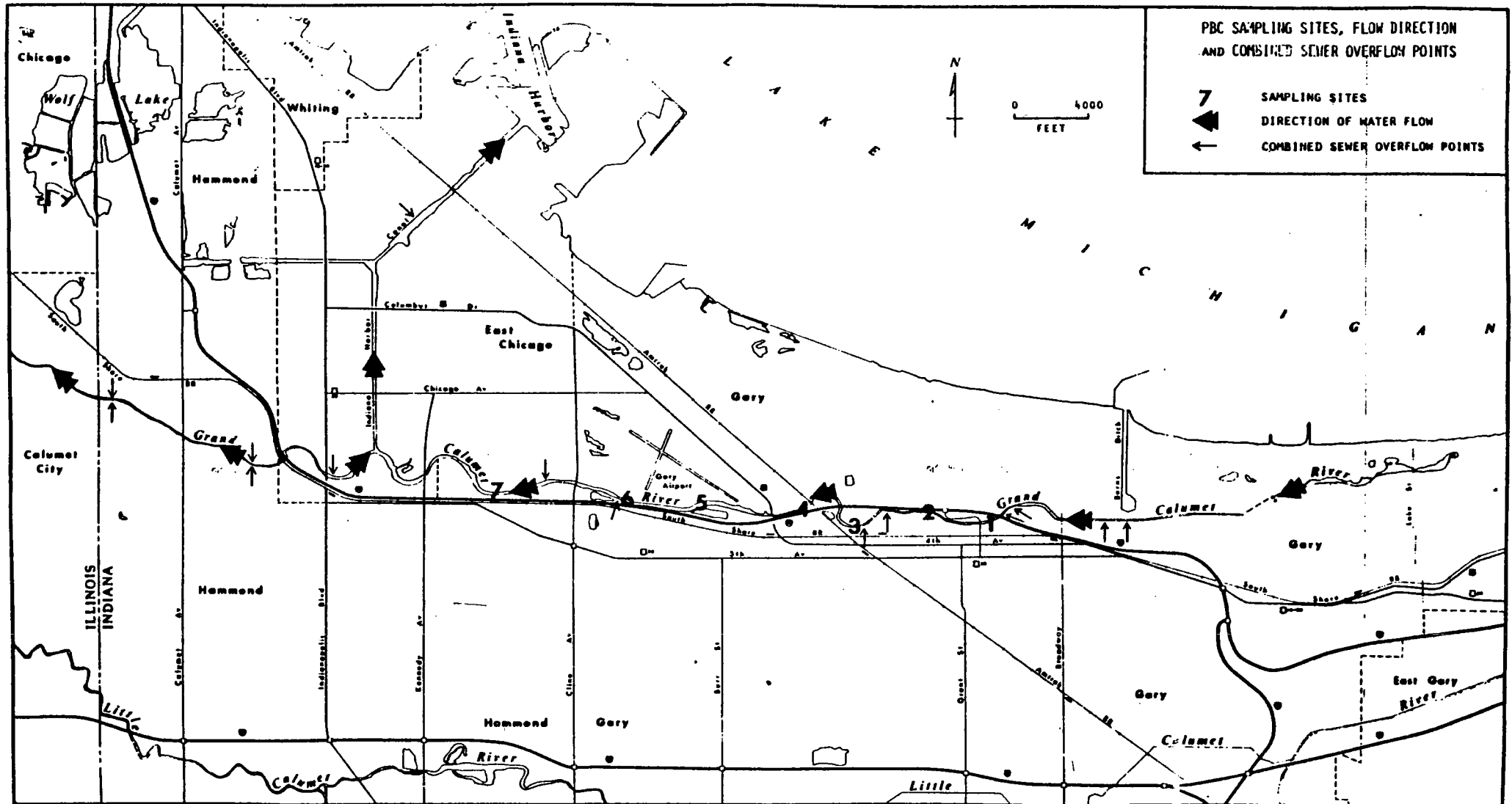
TABLE 4.2 SUMMARY OF SELECTED ORGANIC COMPOUND RESULTS

	CONCENTRATION (mg/kg)												
Location	Total of DDT, DDE, & DDD	Dieldren	Aldrin	Chlordane	Heptachlor	Lindan	Toxaphene	Hexachloro- benzene	Hexachloro- butadiene	PCB as 1248	Trichloro- ethene	Benzo- a-pyrene	Dimeth nitros
UG 9, Top	10.30	4.25	ND	2.35	4.61	1.76	6.35	0.90	1.81	10.40	0.06	206.3	0.
UG 9, Middle	13.89	3.18	0.92	1.64	10.52	1.29	11.27	0.06	0.04	20.05	ND	216.4	1.
UG 9, Bottom	5.21	10.88	ND	5.27	3.29	4.16	5.22	7.47	0.68	24.46	ND	167.4	
UG 9, Average	9.80	6.10	0.31	3.09	6.14	2.40	7.61	2.81	0.84	18.30	0.02	196.7	0.
UN 9.1	12.96	8.65	1.74	2.06	3.94	0.99	7.51	1.16	0.31	12.78	0.42	77.3	0.
UN 9.2	16.46	5.29	ND	1.98	0.35	0.47	3.88	ND	ND	8.47	ND	113.5	
UN 9.3	13.96	5.07	0.05	4.21	0.93	3.22	4.66	0.09	0.69	9.21	0.09	119.4	
UN 9.4	16.97	2.88	2.80	4.66	0.04	2.43	6.49	2.46	ND	4.28	0.21	45.6	
UG 10, Top	9.41	2.83	ND	1.37	0.16	0.05	1.14	ND	0.03	13.65	0.74	109.5	0.
UG 10, Middle	18.63	6.92	0.83	5.76	1.22	0.08	15.46	0.21	0.05	9.04	ND	197.2	
UG 10, Bottom	6.67	7.41	ND	8.11	7.27	0.38	2.85	4.28	1.72	18.66	0.15	200.9	
UG 10, Average	11.57	5.72	0.28	5.08	2.88	0.17	6.48	1.50	0.60	13.78	0.30	169.2	0.
Average of 6 Composites	13.62	5.62	0.86	3.51	2.38	1.61	6.11	1.34	0.41	11.14	0.17	120.3	0.

(i.e. UG 9, UN 9.1,
UN 9.2, UN 9.3, UN 9.4,
and UG 10)

NOTE: ND - Non-Detectable (i.e.: <0.01 for all compounds except Benzo-a-pyrene which is <0.1 PPM)

Proposed EPA Limits for Non Ag.	0.11	0.33	0.33	24.0	1.5	92.0	0.97	2.8	6.8	0.11	18.0	6.9	1.4
Existing EPA Limits (Ag)	None	None	None	None	None	None	None	None	None	50	None	None	None
Existing IDEM Limits (Ag)	None	None	None	None	None	None	None	None	None	10	None	None	None





E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED

EAST CHICAGO, INDIANA 46312

CHEMICALS AND PIGMENTS DEPARTMENT

September 25, 1989

Steve Kim
Oper. Assist. & Trng. Sect.
OWM, IN Dept of Env Mng
105 Meridian Street
Indianapolis, IN 46206

RE: Permit No. 0000329

Subject: DMR-DA Study Number 009

As you are aware, Northern Laboratories and Engineering Inc. submitted their Quality Assurance results under the incorrect permit number. The analyses were conducted on "Concentrate #1" whereas they were identified as "Concentrate #2". This resulted in four of the five analyses required by our permit to be listed as not-acceptable. The pH analysis was conducted by our laboratory, reported correctly, and was acceptable.

Attached is a table listing Northern's analyses of "Concentrate #1" for the four parameters required by our permit and their true values. The results are all acceptable.

Our permit requires daily pH grab samples which we analyze in our laboratory. We have contracted Northern Laboratories to do all other permit analyses.

Sincerely,

John N. Orban
Laboratory Supervisor

DMA-QA Study Number 009

"Concentrate #1"

<u>Analytes</u>	<u>Report Value</u>	<u>True Value</u>	<u>Acceptance Limits</u>	
Total Suspended Solids	32.0	29.7	24.2-33.3	Acceptab
Ammonia-Nitrogen	3.10	3.00	2.31-3.66	Acceptab
COD	34.3	28.5	19.7-44.0	Acceptab
5-Day BOD	23.0	18.6	13.1-30.9	Acceptab

Report Values by Northern Laboratories vrs. True Values on
"Concentrate #1".



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

105 South Meridian Street
P.O. Box 6015
Indianapolis 46206-6015
Telephone 317-232-8603

September 20, 1989

Mr. Eugene Hartstein, Plant Manager
E.I. du Pont de Nemours and Company
5215 Kennedy Avenue
East Chicago, Indiana 46312

Re: Compliance Evaluation Inspection
E.I. du Pont de Nemours & Company
NPDES Permit No. IN 000329
July 13, 1989

Dear Mr. Hartstein:

Enclosed is the report of the referenced Compliance Evaluation Inspection conducted at your facility.

Please review the enclosed report and advise this office in writing within twenty (20) days of the receipt of this correspondence as to the specific corrective actions you have already taken or a schedule for correcting those items of concern to this office listed in the "Summary."

If you have any questions regarding this matter, please contact Mr. Michael Kuss at 317/243-5142.

Very truly yours;

Stephen H. Boswell, Chief
Surveys Section
Office of Water Management

MPK/bs

Enclosure

cc: Lake County Health Department
Mr. O.J. Meyers, Senior Supervisor
Safety, Health & Environment
Mr. John Orban, Certified Operator
U.S. Environmental Protection Agency
Water Division
Mr. Donald Schregardus, Chief
Program Management Unit

SUMMARY

FINDINGS AND CONCLUSIONS

SUBJECT: Compliance Evaluation Inspection
E. I. du Pont de Nemours
NPDES Permit No. IN 0000329
July 13, 1989

During the Compliance Evaluation Inspection of your facility conducted by Mr. Michael Kuss, of this office, on July 13, 1989, the following items of concern were noted:

1. There are a number of dead trees located in an area near an old pre NPDES permit system outfall. The sewer which originally led to this outfall was water combined into outfall 002 in 1974. This old outfall was from the freon-production process. Approximately 2 1/2 years ago du Pont filled in, and over, a sludge, which was contained near this old outfall location. As the area was filled, the sludge migrated towards the Grand Calumet River. Fill material was used as dyking to prevent the sludge from entering the river. Sometime after this "filling-in" process, approximately 40-50 trees have died in this location. du Pont officials feel the sludge may have been ferric chloride sludge from one of the treatment processes. The chlorides may be responsible for the dead trees.

If any herbicide was present, it most likely would be a result of contaminated fill material. Soil samples were taken on July 13, 1989 and will be analyzed in hopes of determining the cause.

This office is also concerned that the sludge or contaminated ground water from this sludge fill area may be leaching into the G.C.R.

2. All samples must be maintained at 4°C during composite sampling. The refrigeration unit was not operating at the time of the inspection.
3. When sample results are below the detection limits the mass loadings should be reported as less than the computed mass value. Please report both concentration and mass loadings on the old DMR report.

MPK



NPDES Compliance Inspection Report

Section A: National Data System Coding

[illegible]

Section 8: Facility Data

Name and Location of Facility Inspected E.I. du. Pont de Nemours and Company 5215 Kennedy Avenue East Chicago, Indiana 46312		Entry Time <input type="checkbox"/> AM <input checked="" type="checkbox"/> PM 2:00	Permit Effective Date
		Exit Time/Date 6:00 pm 7-13-89-	Permit Expiration Date
Name(s) of On-Site Representative(s) Mr. O.J. Meyers Mr. John Orban	Title(s) Supervisor, Safety, Health and Environmental Certified Operator	Phone No(s) 219-391-4653	
Name, Address of Responsible Official Mr. Eugene Hartstein E. I. du. Pont de Nemours and Company 5215 Kennedy Avenue East Chicago, Indiana 46312	Title Plant Manager	Phone No.	Contacted <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		219-391-4653	

Section C: Areas Evaluated During Inspection

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

S	Permit	S	Flow Measurement	N	Pretreatment	S	Operations & Maintenance
S	Records/Reports	S	Laboratory	N	Compliance Schedules	N	Sludge Disposal
M	Facility Site Review	S	Effluent/Receiving Waters	S	Self-Monitoring Program	N	Other:

Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

See attached report.

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Telephone	Date
Michael Kuss	IDEM/Water Management/317-243-5142	July 13, 1989
Signature of Reviewer	Agency/Office	Date
Regulatory Office Use Only		
Action Taken	Date	Compliance Status <input type="checkbox"/> Noncompliance <input type="checkbox"/> Compliance

INSTRUCTIONS

Section A: National Data System Coding (*i.e.*, PCS)

Column 1: Transaction Code: Use N, C, or D for New, Change, or Delete. All inspections will be new unless there is an error in the data entered.

Columns 3-11: NPDES Permit No. Enter the facility's NPDES permit number. (*Use the Remarks columns to record the State permit number, if necessary.*)

Columns 12-17: Inspection Date. Insert the date entry was made into the facility. Use year/month/day format (e.g., 82/06/30 = June 30, 1982).

Column 18: Inspection Type. Use one of the codes listed below to describe the type of inspection.

A — Performance Audit	E — Corps of Engrs Inspection	S — Compliance Sampling
B — Biomonitoring	L — Enforcement Case Support	X — Toxic Sampling
C — Compliance Evaluation	P — Pretreatment	
D — Diagnostic	R — Reconnaissance Inspection	

Column 19: Inspector Code. Use one of the codes listed below to describe the *lead agency* in inspection.

C — Contractor or Other Inspectors (<i>Specify in Remarks columns</i>)	N — NEIC Inspectors
E — Corps of Engineers	R — EPA Regional Inspector
J — Joint EPA/State Inspectors—EPA lead	S — State Inspector
	T — Joint State/EPA Inspectors—State lead

Column 20: Facility Type. Use one of the codes below to describe the facility.

- 1 — Municipal. Publicly Owned Treatment Works (POTWs) with 1972 Standard Industrial Classification (SIC) 4952.
- 2 — Industrial. Other than municipal, agricultural, and Federal facilities.
- 3 — Agricultural. Facilities classified with 1972 SIC 0111 to 0971.
- 4 — Federal. Facilities identified as Federal by the EPA Regional Office.

Columns 21-66: Remarks. These columns are reserved for remarks at the discretion of the Region.

Column 70: Facility Evaluation Rating. Use information gathered during the inspection (regardless of inspection type) to evaluate the quality of the facility self-monitoring program. Grade the program using a scale of 1 to 5 with a score of 5 being used for very reliable self-monitoring programs, 3 being satisfactory, and 1 being used for very unreliable programs.

Column 71: Biomonitoring Information. Enter D for static testing. Enter F for flow through testing. Enter N for no biomonitoring.

Column 72: Quality Assurance Data Inspection. Enter Q if the inspection was conducted as a followup on quality assurance sample results. Enter N otherwise.

Columns 73-80: These columns are reserved for regionally defined information.

Section B: Facility Data

This section is self-explanatory.

Section C: Areas Evaluated During Inspection

Indicate findings (S, M, U, or N) in the appropriate box. Use Section D and additional sheets as necessary. Support the findings, as necessary, in a brief narrative report. Use the headings given on the report form (e.g., Permit, Records/Reports) when discussing the areas evaluated during the inspection. The heading marked "Other" may include activities such as SPCC, BMP's, and multimedia concerns.

Section D: Summary of Findings/Comments

Briefly summarize the inspection findings. This summary should abstract the pertinent inspection findings, not replace the narrative report. Reference a list of attachments, such as complete checklists taken from the NPDES Compliance Inspection Manuals and pretreatment guidance documents, including effluent data when sampling has been done. Use extra sheets as necessary.

NPDES No. IN 0000329

Facility Name E.I. du. Pont de Nemours and Company

City and State East Chicago, Indiana

Date of Inspection July 13, 1989

RECORDS, REPORTS, AND SCHEDULES CHECKLIST

A. PERMIT VERIFICATION

YES	NO	N/A	INSPECTION OBSERVATION CONTAINED IN PERMIT
✓			1. Correct name and mailing address of permittee.
✓			2. Facility is as described in permit.
✓			3. Notification has been given to EPA/State of new, different, increased discharges.
✓			4. Accurate records of influent volume are maintained, when appropriate.
✓			5. Number and location of discharge points are as described in the permit.
✓			6. Name and location of receiving waters are correct.
✓			7. All discharges are permitted.

B. RECORDKEEPING AND REPORTING EVALUATION

✓			RECORDS AND REPORTS ARE MAINTAINED AS REQUIRED BY PERMIT
✓			1. All required information is available, complete, and current; and
✓			2. Information is maintained for required period.
✓			3. Analytical results are consistent with the data reported on the DMR's.
✓			4. Sampling and Analysis Data are adequate and include:
✓			a. Dates, times, location of sampling
✓			b. Name of individual performing sampling
✓			c. Analytical methods and techniques
✓			d. Results of analysis
✓			e. Dates of analysis
✓			f. Name of person performing analysis
✓			g. Instantaneous flow at grab sample stations
✓			5. Monitoring records are adequate and include
✓			a. Flow, pH, D.O., etc. as required by permit
✓			b. Monitoring charts
✓			6. Laboratory equipment calibration and maintenance records are adequate.
✓			7. Plant Records are adequate* and include
✓			a. O&M Manual
✓			b. "As-built" engineering drawings
✓			c. Schedules and dates of equipment maintenance and repairs
✓			d. Equipment supplies manual
✓			e. Equipment data cards

* Required only for facilities built with Federal construction grant funds.

RECORDS, REPORTS, AND SCHEDULES CHECKLIST

B. Recordkeeping and Reporting Evaluation (continued)

YES	NO	N/A	
		<input checked="" type="checkbox"/>	8. Pretreatment records are adequate and included:
		<input checked="" type="checkbox"/>	a. Industrial Waste Ordinance (or equivalent documents)
		<input checked="" type="checkbox"/>	b. Inventory of industrial waste contributors, including:
		<input checked="" type="checkbox"/>	1. Compliance records
		<input checked="" type="checkbox"/>	2. User charge information
		<input checked="" type="checkbox"/>	9. SPCC properly completed, when required.
		<input checked="" type="checkbox"/>	10. Best Management Practices Program available, when required.

C. Compliance Schedule Status Review

		<input checked="" type="checkbox"/>	THE PERMITTEE IS MEETING THE COMPLIANCE SCHEDULE
		<input checked="" type="checkbox"/>	1. The permittee has obtained necessary approvals to begin construction.
		<input checked="" type="checkbox"/>	2. Financing arrangements are completed.
		<input checked="" type="checkbox"/>	3. Contracts for engineering services has been executed.
		<input checked="" type="checkbox"/>	4. Design plans and specifications have been completed.
		<input checked="" type="checkbox"/>	5. Construction has begun.
		<input checked="" type="checkbox"/>	6. Construction is on schedule.
		<input checked="" type="checkbox"/>	7. Equipment acquisition is on schedule.
		<input checked="" type="checkbox"/>	8. Construction has been completed.
		<input checked="" type="checkbox"/>	9. Start-up has begun.
		<input checked="" type="checkbox"/>	10. The permittee has requested an extension of time.
		<input checked="" type="checkbox"/>	11. The permittee has met compliance schedule.

RECORDS, REPORTS, AND SCHEDULES CHECKLIST

D. POTW Pretreatment Requires Review

YES	NO	N/A	THE FACILITY IS SUBJECT TO PRETREATMENT REQUIREMENTS
			1. Status of POTW Pretreatment Program
			a. The POTW Pretreatment Program has been approved by EPA. (If not, is approval in progress? _____)
			b. The POTW is in compliance with the Pretreatment Program Compliance Sched (If not, what is due, and intent of the POTW to remedy)
			2. Status of Compliance with Categorical Pretreatment Standards.
			a. How many industrial users of the POTW are subject to Federal or State Pretreatment Standards? _____
			b. Are these industries aware of their responsibility to comply with applicable standards?
			c. Have baseline monitoring reports (403.12) been submitted for these industries?
			i. Have categorical industries in noncompliance (on EIR reports) submitted compliance schedules?
			ii. How many categorical industries on compliance schedules are meeting the schedule deadlines? _____
			d. If compliance deadlines has passed, have all industries submitted 90 day compliance reports?
			e. Are all categorical industries submitting the required semiannual report?
			f. Are all new industrial discharges in compliance with new source pretreatment standards?
			g. Has the POTW submitted its annual pretreatment report?
			h. Has the POTW taken enforcement action against noncomplying industrial users?
			i. Is the POTW conducting inspections of industrial contributors?
		<input checked="" type="checkbox"/>	3. Are the industrial users subject to Prohibited Limits (403.5) and local limits more stringent than EPA in compliance? (If not, explain why, including need for revision limits.)

FACILITY SITE REVIEW CHECKLIST

YES	NO	N/A	
<input checked="" type="checkbox"/>			1. Standby power or other equivalent provision is provided.
<input checked="" type="checkbox"/>			2. Adequate alarm system for power or equipment failures is available.
<input checked="" type="checkbox"/>			3. POTW handles and disposes of sludge according to applicable Federal, State, and local regulators.
<input checked="" type="checkbox"/>			4. All treatment units, other than back-up units, are in service.
<input checked="" type="checkbox"/>			5. Procedures for facility operation and maintenance exist.
<input checked="" type="checkbox"/>			6. Organization plan (chart) for operation and maintenance is provided.
<input checked="" type="checkbox"/>			7. Operating schedules are established.
<input checked="" type="checkbox"/>			8. Emergency plan for treatment control is established.
<input checked="" type="checkbox"/>			9. Operating management control documents are current and include:
<input checked="" type="checkbox"/>			a. Operating report
<input checked="" type="checkbox"/>			b. Work schedule
<input checked="" type="checkbox"/>			c. Activity report (time cards)
<input checked="" type="checkbox"/>			10. Maintenance record system exists and includes:
<input checked="" type="checkbox"/>			a. As-built drawings
<input checked="" type="checkbox"/>			b. Shop drawings
<input checked="" type="checkbox"/>			c. Construction specifications
<input checked="" type="checkbox"/>			d. Maintenance history
<input checked="" type="checkbox"/>			e. Maintenance costs
<input checked="" type="checkbox"/>			11. Adequate number of qualified operators are on hand.
<input checked="" type="checkbox"/>			12. Established procedures are available for training new operators.
<input checked="" type="checkbox"/>			13. Adequate spare parts and supplies inventory and major equipment specifications are maintained.
<input checked="" type="checkbox"/>			14. Instruction files are kept for operation and maintenance of each item of major equipment.
<input checked="" type="checkbox"/>			15. Operation and maintenance manual is available.
		<input checked="" type="checkbox"/>	16. Regulatory agency was notified of bypassing. (Dates _____)

FACILITY SITE REVIEW CHECKLIST

YES	NO	N/A	
		7	17. Hydraulic and/or organic overloads are experienced. Reason for overloads _____ _____ _____ _____
✓			18. Up-to-date equipment repair records are maintained.
✓			19. Dated tags show out of service equipment.
✓			20. Routine and preventive maintenance are scheduled, performed on time.

PERMITTEE SAMPLING INSPECTION CHECKLIST

A. Permittee Sampling Evaluation

YES	NO	N/A	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. Samplings are taken at sites specified in permit.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. Locations are adequate for representative samples.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Flow proportioned samples are obtained where required by permit.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. Sampling and analysis completed on parameters specified by permit.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. Sampling and analysis done in frequency specified by permit.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. Permittee is using method of sample collection required by permit. Required Method: <u>GRAB + composite</u> If not, method being used is: () Grab () Manual composite () Automatic composite
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. Sample collection procedures are adequate:
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. Samples refrigerated during compositing
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. Proper preservation technique used <u>NEED COOL 4°C</u>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. Container and sample holding times before analyses conform with 40 CFR 136.3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8. Monitoring and analyses are performed more often than required by permit. If so, results reported in permittee's self-monitoring report.

B. Sampling Inspection Procedures and Observations

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Grab samples obtained
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. Composite sample obtained Composite frequency _____ Preservation _____
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. Sample refrigerated during compositing.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. Flow proportioned sample obtained.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. Sample obtained from facility sampling device.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. Sample representative of volume and nature of discharge.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. Sample split with permittee.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	8. Chain of custody procedures employed.

FLOW MEASUREMENT

A. Flow Measurement Inspection Checklist-General

YES	NO	N/A	
<input checked="" type="checkbox"/>			1. Primary flow measurement device is properly installed and maintained.
<input checked="" type="checkbox"/>			2. Flow records are properly kept.
<input checked="" type="checkbox"/>			3. Sharp drops or increases in flow value are accounted for.
<input checked="" type="checkbox"/>			4. Actual flow discharge is measured.
<input checked="" type="checkbox"/>			5. Influent flow is measured before all return lines.
<input checked="" type="checkbox"/>			6. Effluent flow is measured after all lines.
<input checked="" type="checkbox"/>			7. Secondary instruments (totalizers, recorders, etc.) are properly operated and maintained.
<input checked="" type="checkbox"/>			8. Spare parts are stocked.

B. Flow Measurement Inspection Checklist-Flumes

<input checked="" type="checkbox"/>			1. Flow entering flume appears reasonably well distributed across the channel and free of turbulence, boils, or other distortions.
<input checked="" type="checkbox"/>			2. Cross-section velocities at entrance are relatively uniform.
<input checked="" type="checkbox"/>			3. Flume is clean and is free of debris or deposits.
<input checked="" type="checkbox"/>			4. All dimensions of flume are accurate.
<input checked="" type="checkbox"/>			5. Side walls of flume are vertical and smooth.
<input checked="" type="checkbox"/>			6. Sides of flume throat are vertical and parallel.
<input checked="" type="checkbox"/>			7. Flume head is being measured at proper location.
<input checked="" type="checkbox"/>			8. Measurement of flume head is zeroed to flume crest.
<input checked="" type="checkbox"/>			9. Flume is of proper size to measure range of existing flow.
<input checked="" type="checkbox"/>			10. Flume is operating under free-flow conditions over existing range of flows.

FLOW MEASUREMENT

C. Flow Measurement Inspection Checklist - Weirs

			0	1. What type of weir is being used?
YES	NO	N/A		2. The weir is exactly level.
				3. The weir plate is plumb and its top edges are sharp and clean.
				4. There is free access for air below the nappe of the weir.
				5. Upstream channel of weir is straight for at least four times the depth of water level, and free from disturbing influences.
				6. The stilling basin of the weir is of sufficient size and clear of debris.
				7. Head measurements are properly made by facility personnel.
			✓	8. Proper flow tables are used by facility personnel.

D. Flow Measurement Inspection Checklist - Other Flow Devices

			0	1. Type of flowmeter used: _____
				2. What are the most common problems that the operator has had with the flowmeter? _____ _____
				3. Measure Wastewater flow: _____ mgd; Recorded flow: _____ mgd; Error _____ %
				4. Design flow: _____ mgd.
				5. Flow totalizer is properly calibrated.
				6. Frequency of routine inspection by proper operator: _____ /day.
				7. Frequency of maintenance inspections by plant personnel: _____ /year.
				8. Frequency of flowmeter calibration: _____ /month.
				9. Flow measurement equipment adequate to handle expected ranges of flow rates.
				10. Venturi meter is properly installed and calibrated.
			✓	11. Electromagnet flowmeter is properly calibrated.

LABORATORY QUALITY ASSURANCE CHECKLIST

A. General

<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> N/A	1. Written laboratory quality assurance manual is available.
---	-----------------------------	------------------------------	--

B. Laboratory Procedures

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. EPA approved analytical testing procedures are used.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. If alternative analytical procedures are used, proper approval has been obtained.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. Calibration and maintenance of instruments and equipment is satisfactory.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. Quality control procedures are used.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. Quality control procedures are adequate.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. Duplicate sample are analyzed <u>10</u> % of time.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. Spiked samples are used <u>2-5</u> % of time.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8. Commercial laboratory is used: Name: <u>NORTHERN LABORATORY</u> Address: <u>VALPARAISO</u> Contact: <u>SAMMI ELNAGGER.</u> Phone: _____



C. Laboratory Facilities and Equipment

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. Proper grade distilled water is available for specific analysis.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. Dry, uncontaminated compressed air is available.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. Fume hood has enough ventilation capacity.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. The laboratory has sufficient lighting.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. Adequate electrical sources are available.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. Instruments/equipment are in good condition.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. Written requirements for daily operation of instruments are available.

* NOT EVALUATED LAB OFF-SITE.

LABORATORY QUALITY ASSURANCE CHECKLIST (continued)

* C. Laboratory Facilities and Equipment (continued)

YES	NO	N/A	
			8. Standards are available to perform daily check procedures.
			9. Written trouble-shooting procedures for instruments are available.
			10. Schedule for required maintenance exists.
			11. Proper volumetric glassware is used.
			12. Glassware is properly cleaned.
			13. Standard reagents and solvents are properly stored.
			14. Working standards are frequently checked.
			15. Standards are discarded after shelf life has expired.
			16. Background reagents and solvents run with every series of samples.
			17. Written procedures exist for cleanup, hazardous response methods, and applications of correction methods for reagents and solvents.
			18. Gas cylinders are replaced at 100-200 psi.

* D. Laboratory's Precision, Accuracy, and Control Procedures

			1. A minimum of seven replicates is analyzed for each type of control check and this information is on record.
			2. Plotted precision and accuracy control charts are used to determine whether valid, questionable, or invalid data are being generated from day to day.
			3. Control samples are introduced into the train of actual samples to ensure that valid data is being generated.
			4. The precision and accuracy of the analyses are good.

* NOT EVALUATED LAB OFF-SITE.

LABORATORY QUALITY ASSURANCE CHECKLIST (continued)

~~*~~ E. Data Handling and Reporting

YES	NO	N/A	
			1. Round-off rules are uniformly applied.
			2. Significant figures are established for each analysis.
			3. Provision for cross-checking calculations is used.
			4. Correct formulas are used to reduce to simplest factors for quick, correct calculations.
			5. Control chart approach and statistical calculations for quality assurance and report are available and followed.
			6. Report forms have been developed to provide complete data documentation and permanent records and to facilitate data processing.
			7. Data are reported in proper form and units.
			8. Laboratory records are kept readily available to regulatory agency for required period of time.
			9. Laboratory notebook or preprinted data forms are permanently bound to provide good documentation.
			10. Efficient filing system exists enabling prompt channeling of report copies.

~~*~~ F. Laboratory Personnel

			1. The analyst has appropriate training
			2. The analyst follows the specified procedures
			3. The analyst is skilled in performing analyses

** NOT EVALUATED LAB OFF-SITE*



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 5
CHICAGO, ILLINOIS

DEC 27 1989

DATE:

SUBJECT: Review of Region 5 data for E. I. DuPont, East CHICAGO

FROM: Curtis Ross, Director *BABU PARUCHURI*
Region 5 Central Regional Laboratory *504.2019*

To: Data User:

Attached are the results for:

CRL Data Set Numbers: CDO - 6818
Sample Numbers: 90CDD2-SO1, -SO2, -RO1
Parameter(s): ORGANICS - VOAs
Laboratory: SSCRL-ESD-USEPA

Results Status:

- ☒ DATA ACCEPTABLE FOR USE* *Lab.*
☐ DATA QUALIFIED AS TO USE
☐ DATA UNACCEPTABLE FOR USE

* For data acceptability requirements, refer to the method capability statement for the methods referenced.

Comments by the Quality Control Coordinator:

If there are any questions regarding the data, refer them to ~~David A. Payne~~ *David A. Payne*, the Quality Control Coordinator, at 353-3805.

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
(SSCRL)

TRANSMITTED BY

Sg
DEC 27 1989

U.S. EPA CENTRAL
REGIONAL LAB

RECEIVED BY/DATE: _____

Comments: _____

U.S. EPA - REGION V
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Study Name: E.I. DUPONT I the site name
Data Set: CD06818
Lab File ID: >CJ067
Dilution Factor: 1.00000

Matrix: water
Date Received: 12/13/89
Date Analyzed: 12/14/89

METHODBLANK

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
74-87-3	Chloromethane	3.	IU
74-83-9	Bromomethane	3.	IU
75-01-4	Vinyl Chloride	3.	IU
75-00-3	Chloroethane	3.	IU
75-09-2	Methylene Chloride	1.	IU
107-02-8	Acrolein	75.	IU
67-64-1	Acetone	50.	IU
107-13-1	Acrylonitrile	50.	IU
75-15-0	Carbon Disulfide	2.	IU
75-35-4	1,1-Dichloroethene	1.	IU
75-34-3	1,1-Dichloroethane	1.	IU
156-60-5	1,2-Dichloroethene (total)	1.	IU
67-66-3	Chloroform	1.	IU
107-02-2	1,2-Dichloroethane	1.	IU
78-93-3	2-Butanone	20.	IU
71-55-6	1,1,1-Trichloroethane	1.	IU
56-23-5	Carbon Tetrachloride	1.	IU
108-05-4	Vinyl Acetate	10.	IU
75-27-4	Bromodichloromethane	1.	IU
78-87-5	1,2-Dichloropropane	1.	IU
10061-01-5	cis-1,3-Dichloropropene	1.	IU
79-01-6	Trichloroethene	1.	IU
71-43-2	Benzene	1.	IU
124-48-1	Dibromochloromethane	1.	IU
10061-02-6	trans-1,3-Dichloropropene	1.	IU
79-00-5	1,1,2-Trichloroethane	1.	IU
110-75-8	2-Chloroethyl Vinyl ether	1.	IU
75-25-2	Bromoform	1.	IU
108-10-1	4-Methyl-2-pentanone	4.	IU
591-78-6	2-Hexanone	4.	IU
127-18-4	Tetrachloroethene	1.	IU
79-34-5	1,1,2,2-Tetrachloroethane	1.	IU
108-88-3	Toluene	1.	IU
108-90-7	Chlorobenzene	1.	IU
100-41-4	Ethylbenzene	1.	IU
100-42-5	Styrene	2.	IU
108-38-3	Meta Xylene	2.	IU
95-47-6	O- &/or P-Xylene	2.	IU

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank; ARE THERE TICs ? (Circle) YES NO



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

230 SOUTH DEARBORN ST.

CHICAGO, ILLINOIS 60604

REPLY TO THE ATTENTION OF:

MAR 22 1990

5WQC-TUB-8

71400

"WATER"
AUDIT
EPA

Paul Cluxton, Acting Chief
Enforcement Section, Operations Branch
Office of Water Management
Indiana Department of
Environmental Management
105 South Meridian Street
Indianapolis, Indiana 46206-6015

Re: Compliance Sampling Inspection--
Toxics
December 12-13, 1989
E.I. Du Pont de Nemours & Company
East Chicago Plant
East Chicago, Indiana
NPDES Permit No. IN 0000329

Dear Mr. Cluxton:

Enclosed is a copy of a Compliance Sampling Inspection-Toxics Report, dated February 14, 1990, conducted by representatives of the United States Environmental Protection Agency (U.S. EPA) at the above-referenced facility on December 12 through 13, 1989. This inspection report is for your review.

If you have any questions, please contact Horst Witschonke of my staff, at (312) 886-6769. Since we have not sent a copy of the inspection to the permittee, you may wish to do so at your discretion.

Sincerely yours,


Michael J. Mikulka, Chief
Compliance Section

Enclosure

MAR 23 9 35 AM '90
OFFICE OF
WATER
MANAGEMENT
EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: FEB 14 1990

SUBJECT: Compliance Sampling Inspection Toxic (CSI-T) - E. I. DuPont
DeNemours and Company, Inc.; East Chicago, Indiana (IN0000329)
(AFEL17:BD)

FROM: *Basim DiHu*
Basim DiHu, Environmental Engineer
Central District Office (5SCDO)

TO: Michael J. Mikulka, Acting Chief
Compliance Section (5WQC)

THRU: Willie H. Harris, Chief *WTH*
Central District Office (5SCDO) _____ Permit Related Issues

During the period of December 12-13, 1989, Mr. Keith Lesniak and I conducted a CSI-T inspection at the subject facility in response to Water Division's request for NPDES FY'90 inspection. The Indiana Department of Environmental Management (IDEM) was notified, but did not participate in the inspection. A completed inspection checklist and Form 3560-3 are attached.

Facility Representatives

O. J. (Jerry) Meyer, Senior Supervisor
John N. Orban, Laboratory Supervisor
E. F. Hartstein, Plant Manager

Facility Description

The facility is involved in the manufacture of Colloidal Silica (Ludox), and sodium silicate. The plant SIC code is 2819 - General Inorganic Chemical. The plant operates three shifts, 5 days a week - 52 weeks a year and employs approximately 53 employees.

Wastewater Sources and Wastewater Treatment

The discharge through the wastewater treatment plant consists of wastewater from the silica products manufacturing processes quality control laboratory, and storm water runoff from the adjacent area.

Wastewater treatment processes consists of equalization, coagulation, flocculation, gravity thickening, vacuum filtration, pH adjustment, and pressure sand filtration prior to discharge to the Calumet River through Outfall 003.

A flow diagram of the treatment system is attached.

Sludge Handling and Disposal

The sludge from the clarifier is pump to a filter press and dewatered to a filter cake which is then trucked to the company's landfill on their property.

Sampling Procedures

Due to the weather conditions of sub-zero temperature, automatic samplers could not be used. A manual grab flow proportional composite effluent sample was obtained from Outfall 003. The composite sample, Sample #90CD02S01, was prepared from four grab aliquots which were taken on December 12, 1989 at 11:00 a.m., 3:30 p.m., 7:45 p.m., and 8:20 a.m. on December 13, 1989. This composite Sample #90CD02S01, was analyzed for BOD, COD, TSS, TDS, Total Lead, Total Metals, Chlorides, Sulfate, and Ammonia. Grab samples for volatile organics were also obtained on December 12-13, 1989. A grab sample was obtained on December 12, 1989 at Outfall 003 for pH and temperature. The facility obtained samples at the same time. Reagent blanks were also prepared at the site. The samples were preserved, kept on ice and maintained under Chain-of-Custody until they were delivered to Central Regional Laboratory, U.S. EPA, Region V.

pH and temperature were analyzed in the field on a grab sample obtained at Outfall 003.

Survey Results

The results of the manual grab composite samples are presented on the attached sheets and show BOD, TSS, TDS, Ammonia-N, Chlorides, Sulfates, and pH were within the permit limit. There are no limit established for toxicity at this time.

Other significant inspection findings are listed below:

- 1 - The treatment facility appears to be well maintained.
- 2 - Outfall 002 has been discontinued permanently since April 1, 1989 (see attached DuPont letter to IDEM dated May 22, 1989). No flow was seen from Outfall 002 during the inspection.
- 3 - Over the years, the workforce at the plant as well as the various processes have been reduced. The current manpower is 53 people.
- 4 - As shown in the data sheets, and listed below three volatile organic compounds and seven metals were detected in the 003 effluent.

Volatiles Organic

Compound	Sample #90CD02S01	Sample #90CD02S02
Chloroform	2 ug/l	2 ug/l
Bromodichloromethane	1 ug/l	1 ug/l
Dibromochloromethane	0.8 ug/l J*	0.8 ug/l J*

(*) J= Estimated Value

Metal

Barium	0.0203 mg/l
Calcium	111 mg/l
Copper	0.0068 mg/l
Magnesium	5.7 mg/l
Lithium	0.42 mg/l
Sodium	879 mg/l
Strontium	0.158 mg/l

- 5 - Lead was analyzed, but not detected.
- 6 - The plant is no longer taking samples for total lead and volatile organic compounds because of low concentrations. According to Mr. Meyer, the IDEM deleted the requirements for monitoring the lead and volatile organic compounds.
- 7 - Review of the DMR's for the months of August, September, and October of 1989 showed the effluents were within the permit limitation.
- 8 - A visual observation at Outfall 003 revealed that the effluent was clear, and contained no visible foam, no oil sheen, and no visible floating solids.
- 9 - Records/Reports were rated marginal due to the following:
 - a - The names of persons who perform sampling are not recorded.
 - b - The dates, times and location of sampling are not recorded.
- 10 - The laboratory analysis work is contracted out. All samples are analyzed by Northern Laboratories and Engineering, Inc., Valparaiso, Indiana except for pH and temperature.
- 11 - Northern Laboratories and Engineering, Inc. was not visited during the inspection.

12 - Laboratory practices were rated marginal due to the following:

- a - No daily temperature logs are kept on the refrigerator and the ISCO samplers.
- b - Laboratory thermometers are not calibrated against a thermometer that is traceable to the National Institute of Standards and Technology (NIST), formerly the National Bureau of Standards (NBS). The use of uncalibrated thermometers could result in inaccurate temperature settings in apparatus and equipment.
- c - The BOD holding time exceeds 24 hours. Northern Labs picked the samples approximately at 10:00 a.m. the day after the samples were collected.
- d - pH 9 standard was not discarded after shelf life has expired. The expiration date on the pH 9 Standard was August 1989.
- e - I recommend a PAI inspection at Northern Labs for FY'91.

13 - The DMR-QA Study of July 3, 1989 showed the TSS, Ammonia-Nitrogen, COD, and the 5-day BOD results were not acceptable. According to Northern Labs (see attached letter to E.I. DuPont dated September 14, 1989), they mistakenly reported the performance evaluation sample results of Permittee IN0000116 instead of E.I. DuPont performance evaluation sample. The corrected values were resubmitted to IDEM (see attached letters from E.I. DuPont dated September 25, 1989 and Northern Labs dated September 14, 1989).

14 - A rating of satisfactory is given to the other areas of the attached 3560-3 Form which accompanies this report.

If you have any questions concerning this report, please contact me at 886-6242.

Attachments



United States Environmental Protection Agency
Washington, D. C. 20460

NPDES Compliance Inspection Report

Form Approved
OMB No. 2040-0003
Approval Expires 7-31-85

Section A: National Data System Coding

Transaction Code 1N 25 3IN0000329 11 12891212 17 Inspection Type 18S 19R 202

Remarks

Reserved Facility Evaluation Rating 67 69 704 BI 71N OA 72M 73 74 75 80

Section B: Facility Data

Name and Location of Facility Inspected
E. I. du PONT DE NEMOURS AND COMPANY
5215 KENNEDY AVE
EAST CHICAGO, INDIANA 46312

Entry Time ☒ AM ☐ PM Permit Effective Date 5-3-1985
Exit Time/Date Permit Expiration Date 2-28-1990

Name(s) of On-Site Representative(s)
O. J. MEYER
JOHN N. ORBAN

Title(s)
SENIOR SUPERVISOR, SAFETY,
HEALTH & ENVIRONMENTAL
LABORATORY SUPERVISOR-
CERTIFIED OPERATOR

Phone No(s)
(219) 977-4653
(219) 391-4619

Name, Address of Responsible Official
O. J. MEYER

Title
SENIOR SUPERVISOR

Phone No.
(219) 977-4653

Contacted
☒ Yes ☐ No

Section C: Areas Evaluated During Inspection

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

S	Permit	S	Flow Measurement	NA	Pretreatment	S	Operations & Maintenance
M	Records/Reports	M	Laboratory	NA	Compliance Schedules	S	Sludge Disposal
S	Facility Site Review	S	Effluent/Receiving Waters	S	Self-Monitoring Program	S	Other:

Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

Name(s) and Signature(s) of Inspector(s)

Bain Dill

Agency/Office/Telephone

USEPA ICDO
312 886-6242

Date

12-12-89

Signature of Reviewer

[Signature]

Agency/Office

USEPA ES9/CO

Date

2/13/90

Regulatory Office Use Only

Action Taken

Date

Compliance Status

☐ Noncompliance
☐ Compliance

NPDES No. IN 0000329

Facility Name E.I. du Pont

City and State East Chicago, IN 46312

Date of Inspection 12 (12-13) 89

RECORDS, REPORTS, AND SCHEDULES CHECKLIST

A. PERMIT VERIFICATION

YES	NO	N/A	INSPECTION OBSERVATION CONTAINED IN PERMIT
✓			1. Correct name and mailing address of permittee.
✓			2. Facility is as described in permit.
✓			3. Notification has been given to EPA/State of new, different, increased discharges.
✓			4. Accurate records of influent volume are maintained, when appropriate.
✓			5. Number and location of discharge points are as described in the permit. <i>OUTFALLS CC1 & CC2 DISCONTINUED PERMANENTLY.</i>
✓			6. Name and location of receiving waters are correct.
✓			7. All discharges are permitted.

B. RECORDKEEPING AND REPORTING EVALUATION

✓			RECORDS AND REPORTS ARE MAINTAINED AS REQUIRED BY PERMIT
✓			1. All required information is available, complete, and current, and
✓			2. Information is maintained for required period.
✓			3. Analytical results are consistent with the data reported on the DMR's.
✓			4. Sampling and Analysis Data are adequate and include:
	✓		a. Dates, times, location of sampling
	✓		b. Name of individual performing sampling
		✓	c. Analytical methods and techniques <i>OUTSIDE LABORATORY</i>
✓			d. Results of analysis
✓			e. Dates of analysis
✓			f. Name of person performing analysis
		✓	g. Instantaneous flow at grab sample stations
✓			5. Monitoring records are adequate and include
✓			a. Flow, pH, D.O., etc. as required by permit
✓			b. Monitoring charts
	✓		6. Laboratory equipment calibration and maintenance records are adequate <i>REF. IN WPT CALIBRATED</i> <i>NO TEMP. CALIBRATION RECORDS</i>
		✓	7. Plant Records are adequate* and include
			a. O&M Manual
			b. "As-built" engineering drawings
			c. Schedules and dates of equipment maintenance and repairs
			d. Equipment supplies manual
		✓	e. Equipment data cards

RECORDS, REPORTS, AND SCHEDULES CHECKLIST

B. Recordkeeping and Reporting Evaluation (continued)

YES	NO	N/A	8. Pretreatment records are adequate and included:
		✓	a. Industrial Waste Ordinance (or equivalent documents)
		✓	b. Inventory of industrial waste contributors, including:
		✓	1. Compliance records
		✓	2. User charge information
✓			9. SPCC properly completed when required.
		✓	10. Best Management Practices Program available when required

C. Compliance Schedule Status Review

		✓	THE PERMITEE IS MEETING THE COMPLIANCE SCHEDULE
		✓	1. The permittee has obtained necessary approvals to begin construction
		✓	2. Financing arrangements are completed.
		✓	3. Contracts for engineering services has been executed.
		✓	4. Design plans and specifications have been completed.
		✓	5. Construction has begun
		✓	6. Construction is on schedule.
		✓	7. Equipment acquisition is on schedule
		✓	8. Construction has been completed.
		✓	9. Start-up has begun
		✓	10. The permittee has requested an extension of time.
		✓	11. The permittee has met compliance schedule

RECORDS, REPORTS, AND SCHEDULES CHECKLIST

D. POTW Pretreatment Requires Review

YES	NO	N/A	THE FACILITY IS SUBJECT TO PRETREATMENT REQUIREMENTS
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1. Status of POTW Pretreatment Program
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	a. The POTW Pretreatment Program has been approved by EPA. (If not, is approval in progress? _____)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	b. The POTW is in compliance with the Pretreatment Program Compliance Schedule. (If not, what is due, and intent of the POTW to remedy)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2. Status of Compliance with Categorical Pretreatment Standards.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	a. How many industrial users of the POTW are subject to Federal or State Pretreatment Standards? _____
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	b. Are these industries aware of their responsibility to comply with applicable standards?
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	c. Have baseline monitoring reports (403.12) been submitted for these industries?
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	i. Have categorical industries in noncompliance (on EMR reports) submitted compliance schedules?
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ii. How many categorical industries on compliance schedules are meeting the schedule deadlines? _____
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	d. If compliance deadlines has passed, have all industries submitted 90 day compliance reports?
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	e. Are all categorical industries submitting the required semiannual report?
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	f. Are all new industrial discharges in compliance with new source pretreatment standards?
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	g. Has the POTW submitted its annual pretreatment report?
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	h. Has the POTW taken enforcement action against noncomplying industrial users?
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	i. Is the POTW conducting inspections of industrial contributors?
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Are the industrial users subject to Prohibited Limits (403.5) and local limits more stringent than EPA in compliance? (If not, explain why, including need for revision limits)

FACILITY SITE REVIEW CHECKLIST

YES	NO	N/A	
✓			1. Standby power or other equivalent provision is provided.
✓			2. Adequate alarm system for power or equipment failures is available.
✓			3. POTW handles and disposes of sludge according to applicable Federal, State, and local regulators.
✓			4. All treatment units, other than back-up units, are in service.
✓			5. Procedures for facility operation and maintenance exist.
✓			6. Organization plan (chart) for operation and maintenance is provided.
✓			7. Operating schedules are established.
✓			8. Emergency plan for treatment control is established.
✓			9. Operating management control documents are current and include
✓			a. Operating report
✓			b. Work schedule
✓			c. Activity report (time cards)
✓			10. Maintenance record system exists and includes:
✓			a. As-built drawings
✓			b. Shop drawings
✓			c. Construction specifications
✓			d. Maintenance history
✓			e. Maintenance costs
✓			11. Adequate number of qualified operators are on hand.
✓			12. Established procedures are available for training new operators
✓			13. Adequate spare parts and supplies inventory and major equipment specifications are maintained.
✓			14. Instruction files are kept for operation and maintenance of each item of major equipment.
✓			15. Operation and maintenance manual is available
		✓	16. Regulatory agency was notified of bypassing. (Dates _____)

FACILITY SITE REVIEW CHECKLIST

YES	NO	N/A	
			17. <u>Hydraulic</u> and/or organic overloads are experienced. Reason for overloads _____ _____ _____ _____
✓			18 Up-to-date equipment repair records are maintained
		✓	19 Dated tags show out of service equipment.
✓			20 Routine and preventive maintenance are scheduled performed on time

PERMITTEE SAMPLING INSPECTION CHECKLIST

A. Permittee Sampling Evaluation

YES	NO	N/A	
<input checked="" type="checkbox"/>			1. Samplings are taken at sites specified in permit.
<input checked="" type="checkbox"/>			2. Locations are adequate for representative samples.
<input checked="" type="checkbox"/>			3. Flow proportioned samples are obtained where required by permit.
<input checked="" type="checkbox"/>			4. Sampling and analysis completed on parameters specified by permit.
<input checked="" type="checkbox"/>			5. Sampling and analysis done in frequency specified by permit.
			6. Permittee is using method of sample collection required by permit. Required Method _____ If not, method being used is: <input checked="" type="checkbox"/> Grab <input type="checkbox"/> Manual composite <input checked="" type="checkbox"/> Automatic composite
<input checked="" type="checkbox"/>			7. Sample collection procedures are adequate.
<input checked="" type="checkbox"/>			a. Samples refrigerated during compositing
<input checked="" type="checkbox"/>			b. Proper preservation technique used
	<input checked="" type="checkbox"/>		c. Container and sample holding times before analyses conform with 40 CFR 136.3 <i>BOD TEST ONLY</i>
	<input checked="" type="checkbox"/>		8. Monitoring and analyses are performed more often than required by permit. If so, results reported in permittee's self-monitoring report.

B. Sampling Inspection Procedures and Observations

<input checked="" type="checkbox"/>			1. Grab samples obtained
<input checked="" type="checkbox"/>			2. Composite sample obtained Composite frequency _____ Preservation <u>200</u>
<input checked="" type="checkbox"/>			3. Sample refrigerated during compositing.
<input checked="" type="checkbox"/>			4. Flow proportioned sample obtained.
	<input checked="" type="checkbox"/>		5. Sample obtained from facility sampling device
<input checked="" type="checkbox"/>			6. Sample representative of volume and nature of discharge.
	<input checked="" type="checkbox"/>		7. Sample split with permittee.
<input checked="" type="checkbox"/>			8. Chain of custody procedures employed

FLOW MEASUREMENT

A. Flow Measurement Inspection Checklist-General

YES	NO	N/A	
			1. Primary flow measurement device is properly installed and maintained.
✓			2. Flow records are properly kept.
✓			3. Sharp drops or increases in flow value are accounted for.
✓			4. Actual flow discharge is measured.
	✓		5. Influent flow is measured before all return lines.
✓			6. Effluent flow is measured after all lines.
✓			7. Secondary instruments (totalizers, recorders, etc.) are properly operated and maintained.
✓			8. Spare parts are stocked.

B. Flow Measurement Inspection Checklist-Flumes

✓			1. Flow entering flume appears reasonably well distributed across the channel and free of turbulence, boils, or other distortions.
✓			2. Cross-section velocities at entrance are relatively uniform.
✓			3. Flume is clean and is free of debris or deposits.
✓			4. All dimensions of flume are accurate.
✓			5. Side walls of flume are vertical and smooth.
✓			6. Sides of flume throat are vertical and parallel.
✓			7. Flume head is being measured at proper location.
✓			8. Measurement of flume head is zeroed to flume crest.
✓			9. Flume is of proper size to measure range of existing flow.
✓			10. Flume is operating under free-flow conditions over existing range of flows.

FLOW MEASUREMENT

C. Flow Measurement Inspection Checklist - Weirs

			1. What type of weir is being used?
YES	NO	N/A	2. The weir is exactly level.
			3. The weir plate is plumb and its top edges are sharp and clean.
			4. There is free access for air below the nappe of the weir.
			5. Upstream channel of weir is straight: _____ at least four times the depth of water level, and free from disturbing influences.
			6. The stilling basin of the weir is of sufficient size and clear of debris.
			7. Head measurements are properly made by facility personnel.
		✓	8. Proper flow tables are used by facility personnel.

D. Flow Measurement Inspection Checklist - Other Flow Devices

			1. Type of flowmeter used <u>SONIC</u>
			2. What are the most common problems that the operator has had with the flowmeter? <u>NO PROBLEMS</u>
			3. Measure Wastewater flow: _____ mgd; Recorded flow: _____ mgd; Error <u>25</u> %
			4. Design flow: <u>1000</u> ^{GPM} mgd
✓			5. Flow totalizer is properly calibrated
			6. Frequency of routine inspection by proper operator: <u>1</u> /day
			7. Frequency of maintenance inspections by plant personnel: <u>52</u> /year.
			8. Frequency of flowmeter calibration: <u>4</u> /month.
✓			9. Flow measurement equipment adequate to handle expected ranges of flow rates.
		✓	10. Venturi meter is properly installed and calibrated.
		✓	11. Electromagnet flowmeter is properly calibrated.

LABORATORY QUALITY ASSURANCE CHECKLIST

A. General
CONTRACT LAB

YES	NO	N/A	1. Written laboratory quality assurance manual is available.
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B. Laboratory Procedures

✓			1. EPA approved analytical testing procedures are used.
		✓	2. If alternative analytical procedures are used, proper approval has been obtained
	✓		3. Calibration and maintenance of instruments and equipment is satisfactory.
			4. Quality control procedures are used
			5. Quality control procedures are adequate
			6. Duplicate sample are analyzed _____ % of time.
			7. Spiked samples are used _____ % of time
			8. Commercial laboratory is used <div style="margin-left: 100px;"> Name <u>NORTHERN LABORATORIES AND ENGINEERING, INC</u> Address <u>2400 CUMBERLAND DR.</u> <u>VALPARAISO, INDIANA 46383</u> Contact <u>ADRIENNE BYRNE S</u> Phone <u>219 464-2389</u> </div>

C. Laboratory Facilities and Equipment

✓			1. Proper grade distilled water is available for specific analysis.
		✓	2. Dry, uncontaminated compressed air is available
		✓	3. Fume hood has enough ventilation capacity.
✓			4. The laboratory has sufficient lighting
✓			5. Adequate electrical sources are available
✓			6. Instruments/equipment are in good condition
	✓		7. Written requirements for daily operation of instruments are available.

LABORATORY QUALITY ASSURANCE CHECKLIST (continued)

C. Laboratory Facilities and Equipment (continued)

YES	NO	N/A	8. Standards are available to perform daily check procedures.
			9. Written trouble-shooting procedures for instruments are available.
			10. Schedule for required maintenance exists.
			11. Proper volumetric glassware is used.
			12. Glassware is properly cleaned.
			13. Standard reagents and solvents are properly stored.
			14. Working standards are frequently checked.
			15. Standards are discarded after shelf life has expired.
			16. Background reagents and solvents run with every series of samples.
			17. Written procedures exist for cleanup, hazardous response methods, and applications of correction methods for reagents and solvents.
			18. Gas cylinders are replaced at 100-200 psi.

D. Laboratory's Precision, Accuracy, and Control Procedures

			1. A minimum of seven replicates is analyzed for each type of control check and this information is on record.
			2. Plotted precision and accuracy control charts are used to determine whether valid, questionable, or invalid data are being generated from day to day.
			3. Control samples are introduced into the train of actual samples to ensure that valid data is being generated.
			4. The precision and accuracy of the analyses are good.

LABORATORY QUALITY ASSURANCE CHECKLIST (continued)

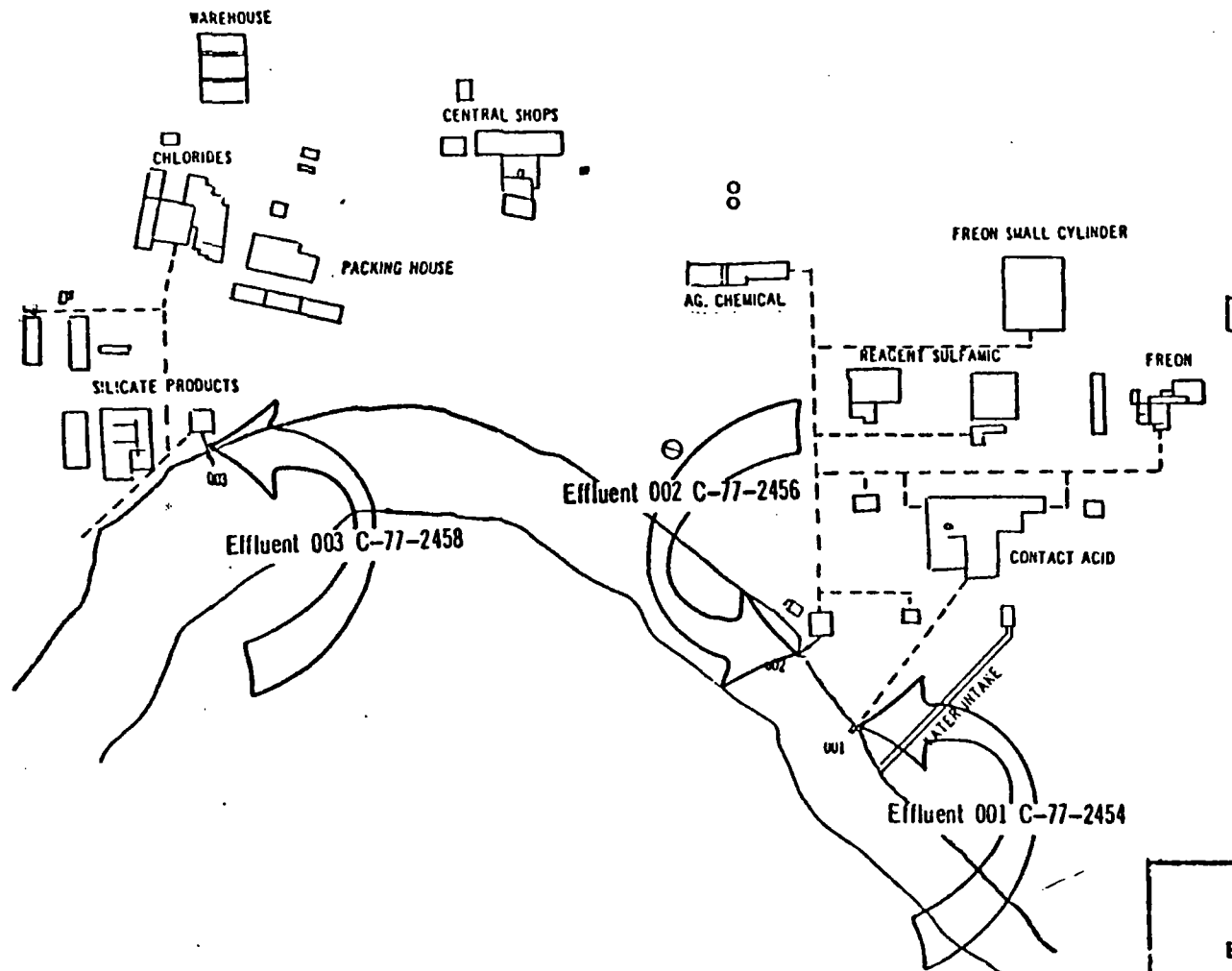
E. Data Handling and Reporting

YES	NO	N/A	
			1. Round-off rules are uniformly applied.
			2. Significant figures are established for each analysis.
			3. Provision for cross-checking calculations is used.
			4. Correct formulas are used to reduce to simplest factors for quick, correct calculations.
			5. Control chart approach and statistical calculations for quality assurance and report are available and followed.
			6. Report forms have been developed to provide complete data documentation and permanent records and to facilitate data processing.
			7. Data are reported in proper form and units.
			8. Laboratory records are kept readily available to regulatory agency for required period of time.
			9. Laboratory notebook or preprinted data forms are permanently bound to provide good documentation.
			10. Efficient filing system exists enabling prompt channeling of report copies.

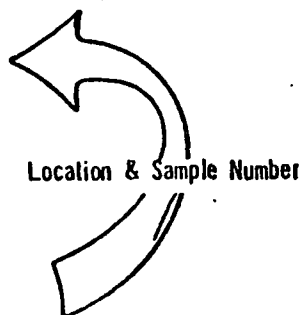
F. Laboratory Personnel

✓			1. The analyst has appropriate training.
✓			2. The analyst follows the specified procedures.
✓			3. The analyst is skilled in performing analyses.

F. GUIDE - VISUAL OBSERVATION - UNIT PROCESS			
RATING CODES: S = Satisfactory; U = Unsatisfactory; M = Marginal; OUT = Out of Operation			
	CONDITION OR APPEARANCE	RATING	COMMENTS
GENERAL	GROUNDS	S	
	BUILDINGS	S	
	POTABLE WATER SUPPLY PROT		
	SAFETY FEATURES		
	BYPASSES		
	STORM WATER OVERFLOWS		
PRELIMINARY	MAINTENANCE OF COLLECTION SYSTEMS		
	PUMP STATION		
	VENTILATION		
	BAR SCREEN		
	DISPOSAL OF SCREENINGS		
	COMMINUTOR		
	GRIT CHAMBER		
	DISPOSAL OF GRIT		
PRIMARY	SETTLING TANKS	S	
	SCUM REMOVAL		
	SLUDGE REMOVAL	S	
	EFFLUENT	S	
SLUDGE DISPOSAL	DIGESTERS		
	TEMPERATURE AND DBH		
	GAS PRODUCTION		
	HEATING EQUIPMENT		
	SLUDGE PUMPS		
	DRYING BEDS		
	VACUUM-FILTER	S	
	INCINERATION		
	DISPOSAL OF SLUDGE	S	
OTHER	FLOW METER AND RECORDER		
	RECORDS	S	
	LAB CONTROLS		
SECONDARY-TERTIARY (List items as required)			
CHLORINE	EFFLUENT		
	CHLORINATORS		
	EFFECTIVE DOSAGE		
	CONTACT TIME		
	CONTACT TANK		



LEGEND



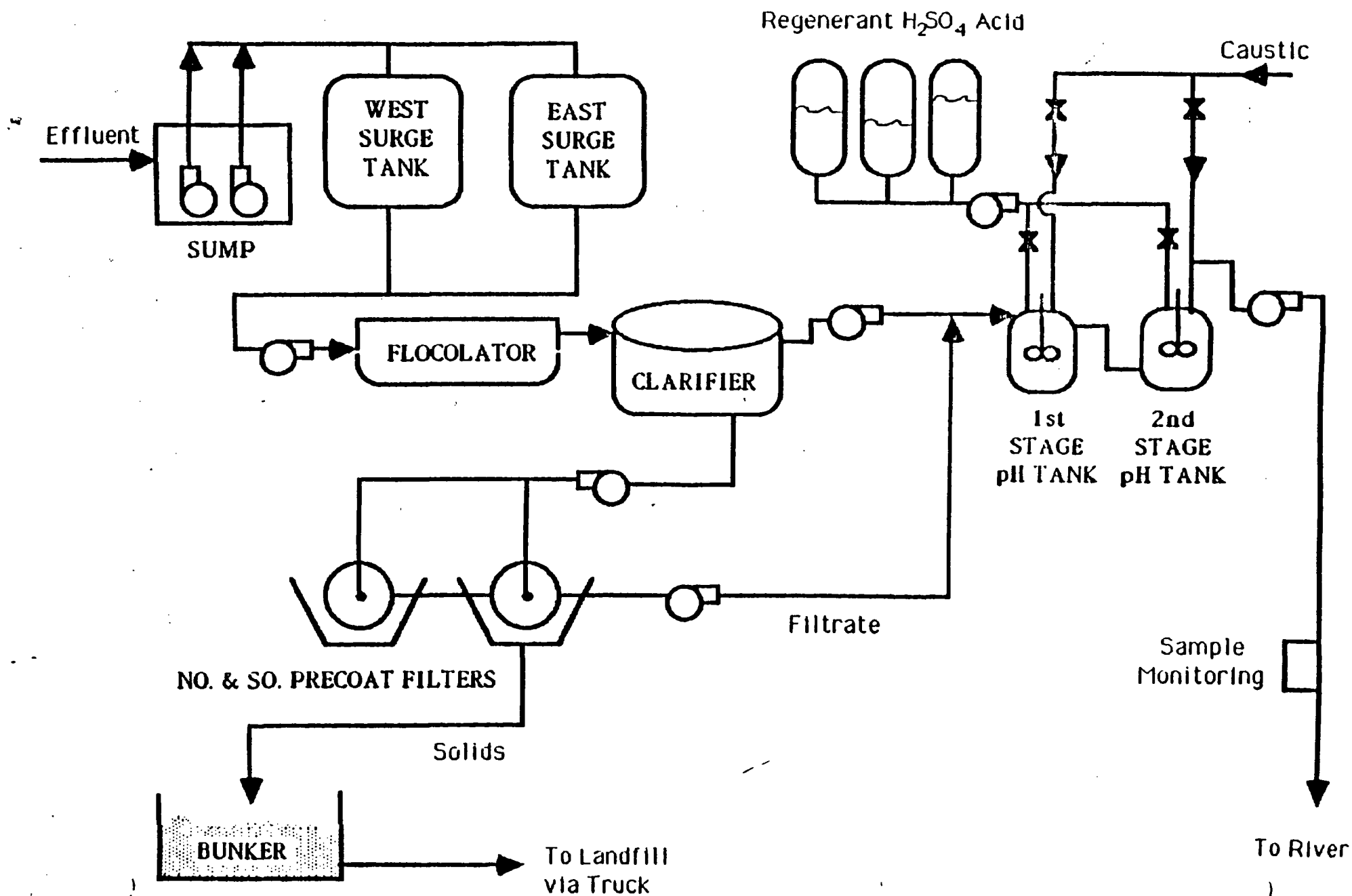
UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V

E.I. DU PONT DE NEMOURS & COMPANY, INC.
LOCATION MAP AND SAMPLING POINTS
5215 KENNEDY AVENUE EAST CHICAGO, INDIANA

CENTRAL DISTRICT OFFICE
1613 W. PERSHING RD.
CHICAGO, ILLINOIS 60609

APPENDIX 2

003 SOLIDS & pH CONTROL



ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

$A \neq E \quad 117:BD$

REGION 6
230 South Dearborn Street
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

[illegible]

Discharger E.I. Du Pont De Nemours & Company
 and Location EAST CHICAGO, IL
 Outfall 003
 Description Effluent

Sheet 1 of 1

Date 12(12-13) 89

Parameters	Sample Results			Permit Requirements			
	Concentration	Units	Loadings	Concentration	Units	Loadings	
			kg/da	lb/da		kg/da	lb/da
Flow	0.26515	mgd			mgd		
Water Temp	17.5	Deg.C			Deg.C		
Field pH	7.19	SU*			SU		
Specific Conductance		SU*			SU		
Total Solids		mg/l			mg/l		
Dissolved Solids (TDS)	2660	mg/l		5875	mg/l		67,000 DAILY A 94,000 DAILY M
Total Suspended Solids	22.0	mg/l		48.59	mg/l		600 DAILY A 900 DAILY M
BOD ₅	6.0	mg/l		13.25	mg/l		100 DAILY A 200 DAILY M
CBOD ₅		mg/l			mg/l		
COD	11.0	mg/l		24.3	mg/l		
TOC		mg/l			mg/l		
Oil & Grease		mg/l			mg/l		
Total Phosphorus		mg/l			mg/l		
Nitrate/Nitrite as N		mg/l			mg/l		
Ammonia as N	0.31	mg/l		0.68	mg/l		150 DAILY A 300 DAILY M
Total Kjeldal Nitrogen		mg/l			mg/l		
Sulfates	1980	mg/l		4378.5	mg/l		39000 DAILY A 52000 DAILY M
Chlorides	13.0	mg/l		28.75	mg/l		2000 DAILY A 4000 DAILY M
Fecal Coliform		# 100ml			# 100ml		
Phenolics		ug/l			ug/l		
Total Cyanide		ug/l			ug/l		
Amenable Cyanide		ug/l			ug/l		

*Standard Units



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
Surveillance and Analysis Division
536 South Clark St.
Chicago, Illinois 60605
CENTRAL DISTRICT OFFICE

BY 3460.1 (10/30/74)

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
CENTRAL DISTRICT OFFICE
FIELD RECORD

CUSTODY
NON-CUSTODY

DISCHARGER E.I. DUPONT
NPDES NUMBER IN0000329
ADDRESS EAST CHICAGO, IL
CONTACT O. J. MEYER

SAMPLING LOCATION outfall 003
OUTFALL NUMBER: 003
LAT ° ' " LONG ° ' "
RECEIVING WATER: M.P. OF DISCHARGE INTO STREET

SAMPLE INFORMATION:

☐ Municipal ☒ Industrial

Other _____

☐ Influent ☒ Effluent
☐ Grab ☐ Cont. Comp.
____ hr. Comp. at ____ hr. Intervals
☐ Time Comp. ☐ Comp. by Flow
☐ CST ☐ CDT ☐ EST ☐ EDT

SAMPLER:

☐ MANUAL ☐ AUTOMATIC ☐ EPA ☐ DISCHARGER
TYPE _____

FLOW MEASUREMENT:

Flume/Weir Type & Size _____
Integrator Finish _____
Integrator Start _____
Intgr. F () x Diff. () = _____
☐ EPA ☐ DISCHARGER ☐ OTHER
☐ TOTALIZER ☐ INSTANTANEOUS ☐ AVERAGE DAILY
☐ PLANT RECORDS ☐ ESTIMATE ☐ OTHER _____

SAMPLE COLLECTION

	Composite	Grab	PRES. CODE ¹¹
SAMPLED BY	DINH/LES/NAK		
CDO Log Numbers	9UC00241		Microbiology 00
STORET Stn. No.			Gen. Chem. 01
DATE	/ 12-12-84		Petro. Prod. 02
TIME	/ 3:55 PM		Pest. Org. PCBs 03
DEPTH			Nutrients 04
FLOW (MGD) ¹¹	0.265		Tot. Diss. Phos. 05
TOT. Cl ₂ RES. mg/l			Oil & Grease 06
TEMP °C.	17.5		Tot. Metals 07
pH (field)	7.19		Diss. Metals 08
D.O. (mg/l)			Phenolics 09
CONDUCTANCE			Cyanide 10
FROM BANK UPSTR.			
SAMPLING MILE POINT			
PRESERVATIVE AND/OR			
PRESERVATIVE CODE			

¹¹ Use Avg. Flow for Composites and Inst. Flow for Grabs

¹¹ Circle or Indicate Analysis and Enter Preservative Code

REMARKS:

SAMPLER'S

SIGNATURE

DUTY TIME

Initial Time Final Time Initial Time Final Time Initial Time Final Time



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 5
CHICAGO, ILLINOIS

DATE: DEC 29 1989
SUBJECT: Review of Region 5 data for E.I. DUPONT
FROM: Curtis Ross, Director
Region 5 Central Regional Laboratory
To: Data User:

Attached are the results for:

CRL Data Set Numbers: CDD 6818
Sample Numbers: 90 CDD 2 Sol-Rol
Parameter(s): COD, BOD, TSS, TDS, NH-N
Laboratory: CRL

Results Status:

- ☒ DATA ACCEPTABLE FOR USE*
☐ DATA QUALIFIED AS TO USE
☐ DATA UNACCEPTABLE FOR USE

* For data acceptability requirements, refer to the method capability statement for the methods referenced.

Comments by the Quality Control Coordinator:

If there are any questions regarding the data, refer them to David Payne, the Quality Control Coordinator, at 353-3805.

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
(ESCR)

TRANSMITTED BY

Jg
DEC 29 1989

U.S. EPA CENTRAL
REGIONAL LAB

RECEIVED BY/DATE: _____

DATA SET	SITE	DU/ACT.
CDD 6818	E.I. DUPONT	A FE

SAMPLES	PARAMETER(S)
90 CDD 501- R01	NH3-N, COD, BOD, TDS, TSS

SAMPLED	RECEIVED	DUE	LAB
12/12-13/89	12/13/89	1/3/90	CRL

SHIPPED	DATA RECEIVED	CONTRACT
	N/A	

Comments By Reviewer:

☒ REVIEWED

☐ UNREVIEWED

pp 12/28/89
TEAM LEADER/DATE

☒ REVIEWED

☒ UNREVIEWED

for Rantj R. K. 12/28/89
SECTION CHIEF/DATE

☒ REVIEWED

☐ UNREVIEWED

SC COORDINATOR/DATE

REVIEWED BY CONTRACT COORDINATOR/DATE

RECEIVED
12/29/89

TRANSMITTED
12/29/89

DATA MANAGEMENT COORDINATOR
L. R. Ruffin

AFE117:BD

OK-88
12/27/89

DIVISION/BRANCH ESD/CDO SAMPLING DATE 12/12-13/89 LAB ARRIVAL DATE 12-13-89 DUE DATE 1/3/90
 DU NUMBER B-304 AFB DATASET NUMBER 6818 STUDY E.I. DUPONT EAST CHICAGO, IN PRIORITY N CONTRACTOR N

[illegible]

15-092784

15092774



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 5
CHICAGO, ILLINOIS

DATE:

SUBJECT: Review of Region 5 data for E.I. DuPont

FROM: Curtis Ross, Director Chi Yang for
Region 5 Central Regional Laboratory

To: Data User:

Attached are the results for:

CRL Data Set Numbers: CD06818
Sample Numbers: 90CD02501, R01
Parameter(s): Pb
Laboratory: CRL

Results Status:

- ☒ DATA ACCEPTABLE FOR USE*
☐ DATA QUALIFIED AS TO USE
☐ DATA UNACCEPTABLE FOR USE

* For data acceptability requirements, refer to the method capability statement for the methods referenced.

Comments by the Quality Control Coordinator:

If there are any questions regarding the data, refer them to David Payne,
the Quality Control Coordinator, at 3-3805

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
(55CRL)

1
161
JAN 05 1989

RECEIVED BY/DATE: _____

Comments: _____

U.S. EPA CENTRAL
REGIONAL LAB

Study Name: E.I. DUPONT
Data Set: CD06818
Lab File ID: >CJ083
Dilution Factor: 1.00000

the site name

Matrix: water
Date Received: 12/13/89
Date Analyzed: 12/15/89

METHUDELANK

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
74-87-3	Chloromethane	3.	IU
74-83-9	Bromomethane	3.	IU
75-01-4	Vinyl Chloride	3.	IU
75-00-3	Chloroethane	3.	IU
75-09-2	Methylene Chloride	1.	IU
107-02-8	Acrolein	75.	IU
67-64-1	Acetone	50.	IU
107-13-1	Acrylonitrile	50.	IU
75-15-0	Carbon Disulfide	2.	IU
75-35-4	1,1-Dichloroethene	1.	IU
75-34-3	1,1-Dichloroethane	1.	IU
156-60-5	1,2-Dichloroethene (total)	1.	IU
67-66-3	Chloroform	1.	IU
107-02-2	1,2-Dichloroethane	1.	IU
78-93-3	2-Butanone	20.	IU
71-55-6	1,1,1-Trichloroethane	1.	IU
56-23-5	Carbon Tetrachloride	1.	IU
108-05-4	Vinyl Acetate	10.	IU
75-27-4	Bromodichloromethane	1.	IU
78-87-5	1,2-Dichloropropane	1.	IU
10061-01-5	cis-1,3-Dichloropropene	1.	IU
79-01-6	Trichloroethene	1.	IU
71-43-2	Benzene	1.	IU
124-48-1	Dibromochloromethane	1.	IU
10061-02-6	trans-1,3-Dichloropropene	1.	IU
79-00-5	1,1,2-Trichloroethane	1.	IU
110-75-8	2-Chloroethyl Vinyl ether	1.	IU
75-25-2	Bromoform	1.	IU
108-10-1	4-Methyl-2-pentanone	4.	IU
591-78-6	2-Hexanone	4.	IU
127-18-4	Tetrachloroethene	1.	IU
79-34-5	1,1,2,2-Tetrachloroethane	1.	IU
108-88-3	Toluene	1.	IU
108-90-7	Chlorobenzene	1.	IU
100-41-4	Ethylbenzene	1.	IU
100-42-5	Styrene	2.	IU
108-38-3	Meta Xylene	2.	IU
95-47-6	O- &/or P-Xylene	2.	IU

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank; ARE THERE TICs ? (Circle) YES ☒ NO

U.S. EPA - REGION V
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Study Name: E.I. DUPONT I the site name
Data Set: CDO6818
Lab File ID: >CJ076
Dilution Factor: 1.00000

Matrix: water
Date Received: 12/13/89
Date Analyzed: 12/14/89

90CD02R01

		CONCENTRATION UNITS:	
CAS NO.	COMPOUND	ug/L	Q
74-87-3	Chloromethane	3.	IU
74-83-9	Bromomethane	3.	IU
75-01-4	Vinyl Chloride	3.	IU
75-00-3	Chloroethane	3.	IU
75-09-2	Methylene Chloride	1.	IU
107-02-8	Acrolein	75.	IU
67-64-1	Acetone	50.	IU
107-13-1	Acrylonitrile	50.	IU
75-15-0	Carbon Disulfide	2.	IU
75-35-4	1,1-Dichloroethene	1.	IU
75-34-3	1,1-Dichloroethane	1.	IU
156-60-5	1,2-Dichloroethene (total)	1.	IU
67-66-3	Chloroform	5.	I
107-02-2	1,2-Dichloroethane	1.	IU
78-93-3	2-Butanone	20.	IU
71-55-6	1,1,1-Trichloroethane	1.	IU
56-23-5	Carbon Tetrachloride	1.	IU
108-05-4	Vinyl Acetate	10.	IU
75-27-4	Bromodichloromethane	2.	I
78-87-5	1,2-Dichloropropane	1.	IU
10061-01-5	cis-1,3-Dichloropropene	1.	IU
79-01-6	Trichloroethene	1.	IU
71-43-2	Benzene	1.	IU
124-48-1	Dibromochloromethane	.7	IJ
10061-02-6	trans-1,3-Dichloropropene	1.	IU
79-00-5	1,1,2-Trichloroethane	1.	IU
110-75-8	2-Chloroethyl Vinyl ether	1.	IU
75-25-2	Bromoform	1.	IU
108-10-1	4-Methyl-2-pentanone	4.	IU
591-78-6	2-Hexanone	4.	IU
127-18-4	Tetrachloroethene	1.	IU
79-34-5	1,1,2,2-Tetrachloroethane	1.	IU
106-88-3	Toluene	1.	IU
108-90-7	Chlorobenzene	1.	IU
100-41-4	Ethylbenzene	1.	IU
100-42-5	Styrene	2.	IU
108-38-3	Meta Xylene	2.	IU
95-47-6	O-&/or P-Xylene	2.	IU

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank; ARE THERE TICs ? (Circle) YES NO

DATA SET	SITE	DU/ACT.	
CDO 6818	E.I. Du Pont	AFE104	
SAMPLES		PARAMETER(S)	
90CD02 S01, R01		Pb	
SAMPLED	RECEIVED	DUE	LAB
12 Dec 89	13 Dec 89	3 Jan 90	CR2
SHIPPED	DATA RECEIVED	CONTRACT	
NA			

Comments By Reviewer: Quality of curve poor, however does not affect results.

() REVIEWED

() UNREVIEWED

TEAM LEADER/DATE

John V. Moore 3 Jan 90

() REVIEWED

() UNREVIEWED

SECTION CHIEF/DATE

Mr. Gary 1/4/90

() REVIEWED

() UNREVIEWED

QC COORDINATOR/DATE

REVIEWED BY CONTRACT COORDINATOR/DATE

RECEIVED

TRANSMITTED

DATA MANAGEMENT COORDINATOR

AFE117:BD

مستند
90 مثلاً 7

DIVISION/BRANCH ESD/CDO SAMPLING DATE 12/12-13-89 LAB ARRIVAL DATE 12-13-89 DUE DATE 1/13/90
 DII NUMBER 231 AFE DATASET NUMBER 6818 STUDY E.S. DEPT PRIORITY N CONTRACTOR N
ENF CHICAGO IN

[illegible]

1508
178
1504
177



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 5
CHICAGO, ILLINOIS

JAN 17 1990

DATE:

SUBJECT: Review of Region 5 data for E. I. Dupont

FROM: Curtis Ross, Director Ch' Yang for
Region 5 Central Regional Laboratory

To: Data User:

Attached are the results for:

CRL Data Set Numbers: CDO 6818
Sample Numbers: 90 C102-D 1-R01
Parameter(s): 504-C1
Laboratory: CRL

Results Status:

- ☒ DATA ACCEPTABLE FOR USE*
☐ DATA QUALIFIED AS TO USE
☐ DATA UNACCEPTABLE FOR USE

* For data acceptability requirements, refer to the method capability statement for the methods referenced.

Comments by the Quality Control Coordinator:

RECEIVED

JAN 17 1990

CENTRAL
DISTRICT OFFICE

If there are any questions regarding the data, refer them to David Payne,
the Quality Control Coordinator, at 353-3805.

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
(SSCRL)

TRANSMITTED BY

JAN 17 1990

U.S. EPA CENTRAL
REGIONAL LAB

DATA SET	SITE	DU/ACT.
0006818	E I Dupont	AFE
SAMPLES	PARAMETER(S)	
90002501-201	504, CL	
SAMPLED	RECEIVED	DUE
12/12-13/89	12/13/89	1/3/90
		LAB
		CRL
SHIPPED	DATA RECEIVED	CONTRACT
		W/A

Comments By Reviewer:

☒ REVIEWED

☐ UNREVIEWED

68 1/12/90
TEAM LEADER/DATE

☐ REVIEWED

☒ UNREVIEWED

Ch. 2 1/12/90
SECTION CHIEF/DATE

☐ REVIEWED

☐ UNREVIEWED

GC COORDINATOR/DATE

REVIEWED BY CONTRACT COORDINATOR/DATE

RECEIVED

TRANSMITTED

DATA MANAGEMENT COORDINATOR

1-17-90

1-17-90

J. F. Kline

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAMS MUNICIPAL-NUTRIENTS

AFE117:BD

OK-88
1/12/90

DIVISION/BRANCH

ESD/CDO

SAMPLING DATE

12(12-13)89

LAB ARRIVAL DATE

12-13-89

USE DATE

1/3/90

DU NUMBER

DATA AFE

DATASET NUMBER

6818

STUDY

E-1 Dupont

CHICAGO, ILL

PRIORITY

CONTRACTOR

CHL LOG
NUMBER

SAMPLE DESCRIPTION

WATER

SPECIFIC CONDUCTANCE 25C
UMHIS/CM

MIN7389

WATER

PH
PH UNITS

MIN73910

WATER

ALKALINITY
MG CAC03/L

MIN74011

WATER

SULFATE
MG SO4/L

MIN74112

WATER

CHLORIDE
MG CL/L

MIN74213

9UCD02 501

RQ

04+ FAI 003

BLANK

1980 (P)

1976

44

Ro Pass

12-22-89

13 -

34

Ro Pass

12-22-89

5-092770

5-092773



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 5
CHICAGO, ILLINOIS

DATE: JAN 05 1989
SUBJECT: Review of Region 5 data for -E. I. Du Pont
FROM: Curtis Ross, Director Mr. Payne for
Region 5 Central Regional Laboratory
To: Data User:

Attached are the results for:

CRL Data Set Numbers: CD06818
Sample Numbers: 90 CD02501, R01
Parameter(s): ICP
Laboratory: CRL

Results Status:

- ☒ DATA ACCEPTABLE FOR USE*
☐ DATA QUALIFIED AS TO USE
☐ DATA UNACCEPTABLE FOR USE

* For data acceptability requirements, refer to the method capability statement for the methods referenced.

Comments by the Quality Control Coordinator:

If there are any questions regarding the data, refer them to David Payne, the Quality Control Coordinator, at 3-3805.

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
(5SCRL)

TRANSMITTED BY

JAN 05 1989

U.S. EPA CENTRAL
REGIONAL LAB

RECEIVED BY/DATE: _____

Comments: _____

DATA SET	SITE	DU/ACT.
CD06818	E. I. Du Pont	AFE 104
SAMPLES	PARAMETER(S)	
90CD02501, R01	ICP	
SAMPLED	RECEIVED	DUE
12 Dec 89	13 Dec 89	3 Jan 90
LAB		
CRK		
SHIPPED	DATA RECEIVED	CONTRACT
NA		→

Comments By Reviewer:

Cu, Na unconfirmed in 90CD-2 R-1

() REVIEWED

() UNREVIEWED

TEAM LEADER/DATE

John V. Brown 3 Jan 90

() REVIEWED

() UNREVIEWED

SECTION CHIEF/DATE

W. Tang 14/90

() REVIEWED

() UNREVIEWED

QC COORDINATOR/DATE

REVIEWED BY CONTRACT COORDINATOR/DATE

RECEIVED
1-4-90

TRANSMITTED
1-5-90

DATA MANAGEMENT COORDINATOR

Sylvia Preffer

Jun
3 Jan 90

SAMPLE REPORT

ample CD06816

CD02S01

Operator

ate analyzed 12/28/89

Correction

1.22000

File name RUN729A

Element	Concentration	Units
Silver	6.0 U	micrograms/liter
Aluminum	80.0 U	micrograms/liter
Boron	80.0 U	micrograms/liter
Barium	20.3	micrograms/liter
Beryllium	1.0 U	micrograms/liter
Calcium	111000.	micrograms/liter
Cadmium	10.0 U	micrograms/liter
Cobalt	6.0 U	micrograms/liter
Chromium	8.0 U	micrograms/liter
Copper	6.6	micrograms/liter
Magnesium	5730.	micrograms/liter
Iron	50.0 MS	micrograms/liter
Potassium	5000. U	micrograms/liter
Lithium	420.	micrograms/liter
Manganese	5.0 U	micrograms/liter
Molybdenum	15.0 U	micrograms/liter
Sodium	279000.	micrograms/liter
Nickel	15.0 U	micrograms/liter
Lead	50.0 MS	micrograms/liter
Tin	40.0 U	micrograms/liter
Srconium	155.	micrograms/liter
Titanium	25.0 U	micrograms/liter
Vanadium	5.0 MS	micrograms/liter
Yttrium	5.0 U	micrograms/liter
Zinc	40.0 U	micrograms/liter

MS 12/29/89

Jim
3 Jan 90

SAMPLE REPORT

ample CD06618

CD02S01

Operator

ate analyzed 12/27/89

Correction

1.22000

File name RUN729

=====
Element Concentration Units
=====

Chromium

8.0 U

micrograms/liter

Iron

80.0 U

micrograms/liter

Vanadium

5.0 U

micrograms/liter

MS 12/29/89

Jm
3 Jan 90

SAMPLE REPORT

CD06818

CD02R01

Operator

analyzed 12/28/89

Correction

1.22000

File name RUN729A

Element	Concentration	Units
Silver	6.0 U	micrograms/liter
Aluminum	20.0 U	micrograms/liter
Boron	60.0 U	micrograms/liter
Barium	6.0 U	micrograms/liter
Bismuth	1.0 U	micrograms/liter
Calcium	500. U	micrograms/liter
Cadmium	10.0 U	micrograms/liter
Cobalt	6.0 U	micrograms/liter
Copper	8.0 U	micrograms/liter
Iron	6.0	micrograms/liter
Magnesium	100. U	micrograms/liter
Lead	50.0 MS	micrograms/liter
Potassium	5000. U	micrograms/liter
Lithium	10.0 U	micrograms/liter
Manganese	5.0 U	micrograms/liter
Molybdenum	15.0 U	micrograms/liter
Sodium	1020.	micrograms/liter
Nickel	15.0 U	micrograms/liter
Vanadium	70.0 MS	micrograms/liter
Tin	40.0 U	micrograms/liter
Strontium	10.0 U	micrograms/liter
Titanium	25.0 U	micrograms/liter
Zinc	5.0 MS	micrograms/liter
Yttrium	5.0 U	micrograms/liter
Zinc	40.0 U	micrograms/liter

MS 12/29/89

JVM
3 Jan 90

SAMPLE REPORT

ample CD06618 CD02R01 Operator
ate analyzed 12/27/89 Correction 1.22000 File name RUN729

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Element	Concentration	Units
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Chromium	8.0 U	micrograms/liter
Iron	80.0 U	micrograms/liter
Vanadium	5.0 U	micrograms/liter

MS 12/29/89

CENTRAL REGIONAL LABORATORY
U.S. ENVIRONMENTAL PROTECTION AGENCY
536 SOUTH CLARK
CHICAGO, ILLINOIS 60605

312/353-8370

VOLATILE
ORGANICS ANALYSIS DATA SHEET
=====

STUDY NAME: E. I. DUPONT . MATRIX: WATER DATA SET #: CD06818
LAB SAMPLE I.D. NO: METHODBLANK LAB FILE ID: >CJ067 ACTIVITY CODE: AFE104

TENTATIVELY
IDENTIFIED COMPOUNDS

SCAN #

ESTIMATED
CONCENTRATION (UG/L)

=====

=====

=====

UNKNOWN #1

624

1.4

U.S. EPA - REGION V
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Study Name: E.I. DUPONT | the site name
Data Set: CDO6818
Lab File ID: >CJ082
Dilution Factor: 1.00000

Matrix: water
Date Received: 12/13/89
Date Analyzed: 12/14/89

90CD02S01

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		ug/L	Q
74-87-3	Chloromethane	3.	IU
74-83-9	Bromomethane	3.	IU
75-01-4	Vinyl Chloride	3.	IU
75-00-3	Chloroethane	3.	IU
75-09-2	Methylene Chloride	1.	IU
107-02-8	Acrolein	75.	IU
67-64-1	Acetone	50.	IU
107-13-1	Acrylonitrile	50.	IU
75-15-0	Carbon Disulfide	2.	IU
75-35-4	1,1-Dichloroethene	1.	IU
75-34-3	1,1-Dichloroethane	1.	IU
156-60-5	1,2-Dichloroethene (total)	1.	IU
67-66-3	Chloroform	2.	I
107-02-2	1,2-Dichloroethane	1.	IU
78-93-3	2-Butanone	20.	IU
71-55-6	1,1,1-Trichloroethane	1.	IU
56-23-5	Carbon Tetrachloride	1.	IU
108-05-4	Vinyl Acetate	10.	IU
75-27-4	Bromodichloromethane	1.	I
78-87-5	1,2-Dichloropropane	1.	IU
10061-01-5	cis-1,3-Dichloropropene	1.	IU
79-01-6	Trichloroethene	1.	IU
71-43-2	Benzene	1.	IU
124-48-1	Dibromochloromethane	.8	IJ
10061-02-6	trans-1,3-Dichloropropene	1.	IU
79-00-5	1,1,2-Trichloroethane	1.	IU
110-75-8	2-Chloroethyl Vinyl ether	1.	IU
75-25-2	Bromoform	1.	IU
108-10-1	4-Methyl-2-pentanone	4.	IU
591-78-6	2-Hexanone	4.	IU
127-18-4	Tetrachloroethene	1.	IU
79-34-5	1,1,2,2-Tetrachloroethane	1.	IU
108-88-3	Toluene	1.	IU
108-90-7	Chlorobenzene	1.	IU
100-41-4	Ethylbenzene	1.	IU
100-42-5	Styrene	2.	IU
108-38-3	Meta Xylene	2.	IU
95-47-6	O-&/or P-Xylene	2.	IU

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank; ARE THERE TICs ? (Circle) YES NO

U.S. EPA - REGION II
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

Study Name: E.I. DUPONT | the site name
Data Set: CDO6818
Lab File ID: >CJ086
Dilution Factor: 1.00000

Matrix: water
Date Received: 12/13/89
Date Analyzed: 12/15/89

90CD02S02

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
74-87-3	-----Chloromethane	3.	IU
74-83-9	-----Bromomethane	3.	IU
75-01-4	-----Vinyl Chloride	3.	IU
75-00-3	-----Chloroethane	3.	IU
75-09-2	-----Methylene Chloride	1.	IU
107-02-8	-----Acrolein	75.	IU
67-64-1	-----Acetone	50.	IU
107-13-1	-----Acrylonitrile	50.	IU
75-15-0	-----Carbon Disulfide	2.	IU
75-35-4	-----1,1-Dichloroethene	1.	IU
75-34-3	-----1,1-Dichloroethane	1.	IU
156-60-5	-----1,2-Dichloroethene (total)	1.	IU
67-66-3	-----Chloroform	2.	I
107-02-2	-----1,2-Dichloroethane	1.	IU
78-93-3	-----2-Butanone	20.	IU
71-55-6	-----1,1,1-Trichloroethane	1.	IU
56-23-5	-----Carbon Tetrachloride	1.	IU
108-05-4	-----Vinyl Acetate	10.	IU
75-27-4	-----Bromodichloromethane	1.	I
78-87-5	-----1,2-Dichloropropane	1.	IU
10061-01-5	-----cis-1,3-Dichloropropene	1.	IU
79-01-6	-----Trichloroethene	1.	IU
71-43-2	-----Benzene	1.	IU
124-48-1	-----Dibromochloromethane	.8	IJ
10061-02-6	-----trans-1,3-Dichloropropene	1.	IU
79-00-5	-----1,1,2-Trichloroethane	1.	IU
110-75-8	-----2-Chloroethyl Vinyl ether	1.	IU
75-25-2	-----Bromoform	1.	IU
108-10-1	-----4-Methyl-2-pentanone	4.	IU
591-78-6	-----2-Hexanone	4.	IU
127-18-4	-----Tetrachloroethene	1.	IU
79-34-5	-----1,1,2,2-Tetrachloroethane	1.	IU
108-88-3	-----Toluene	1.	IU
108-90-7	-----Chlorobenzene	1.	IU
100-41-4	-----Ethylbenzene	1.	IU
100-42-5	-----Styrene	2.	IU
108-38-3	-----Meta Xylene	2.	IU
95-47-6	-----O-&/or P-Xylene	2.	IU

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank; ARE THERE TICs ? (Circle) YES NO



**NORTHERN LABORATORIES AND
ENGINEERING, INC.**

ENVIRONMENTAL CONSULTING AND TESTING
AIR & WATER POLLUTION-SOLID WASTES SAMPLING - ANALYSIS - CONSULTING

Telephone (219) 464-2389 FAX: 219-462-2953

2400 Cumberland Drive
Valparaiso, Indiana 46383

LABORATORY REPORT

CLIENT E. I. Dupont DeNemours & Company DATE October 2, 1989
ATTENTION Mr. John Urban PHONE (219) 391-4619
ADDRESS 5215 Kennedy Avenue, East Chicago, IN DATE OF SAMPLE RECEIPT
SAMPLE COLLECTED BY Northern Labs & Engineering September 18, 1989 (5095)

PARAMETER	RESULTS	DATE OF ANALYSIS	TIME OF ANALYSIS	METHOD	INITIALS OF ANALYST
	9/16 9-17-89 Outfall 003				
COD	4.6	9-22-89	12:35	410.2	RS
Ammonia-Nitrogen	<0.10	9-28-89	11:57	350.2	LA
BOD	<2.0	9-18-89	17:00	405.1	RS
Total Suspended Solids	5.0	9-18-89	09:00	160.2	RS

All results reported in mg/L unless otherwise noted

baw/dupont

Approved by

Adrienne Byrnes
Manager of Analytical Chemistry Section



**NORTHERN LABORATORIES AND
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ENVIRONMENTAL CONSULTING AND TESTING
AIR & WATER POLLUTION-SOLID WASTES SAMPLING - ANALYSIS - CONSULTING

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2400 Cumberland Drive
Valparaiso, Indiana 46383

LABORATORY REPORT

CLIENT E. I. Dupont DeNemours & Company DATE September 20, 1989
ATTENTION Mr. John Urban PHONE (219) 391-4619
ADDRESS 5215 Kennedy Avenue, East Chicago, IN DATE OF SAMPLE RECEIPT
SAMPLE COLLECTED BY Northern Labs & Engineering August 14, 1989 (4385)

RESULTS

PARAMETER	8-12-89 <u>Outfall 003</u>	DATE OF ANALYSIS	TIME OF ANALYSIS	METHOD	INITIALS OF ANALYST
COD	7.1	9-14-89	12:45	410.2	JZ
Ammonia-Nitrogen	<0.10	9-06-89	14:47	350.2	APB
BOD	<2.0	8-14-89	16:00	405.1	JZ
Total Suspended Solids	25	8-14-89	13:35	160.2	JZ

All results reported in mg/L unless otherwise noted

baw/dupont

Approved by

Adrienne Byrnes

Manager of Analytical Chemistry Section



**NORTHERN LABORATORIES AND
ENGINEERING, INC.**

ENVIRONMENTAL CONSULTING AND TESTING

AIR & WATER POLLUTION-SOLID WASTES SAMPLING - ANALYSIS - CONSULTING

Telephone (219) 464-2389 FAX: 219-462-2953

2400 Cumberland Drive
Valparaiso, Indiana 46383

LABORATORY REPORT

CLIENT E. I. Dupont DeNemours & Company DATE September 26, 1989
ATTENTION Mr. John Urban PHONE (219) 391-4619
ADDRESS 5215 Kennedy Avenue, East Chicago, IN DATE OF SAMPLE RECEIPT
SAMPLE COLLECTED BY Northern Labs & Engineering September 5, 1989 (4821)

PARAMETER	RESULTS	DATE OF ANALYSIS	TIME OF ANALYSIS	METHOD	INITIALS OF ANALYST
	9/5 9-04-89 <u>Outfall 003</u>				
COD	1.8	9-15-89	12:35	410.2	RS
Ammonia-Nitrogen	<0.10	9-13-89	11:20	350.2	APB
BOD	<2.0	9-05-89	16:35	405.1	JZ
Total Suspended Solids	7.5	9-05-89	13:40	160.2	JZ
Total Dissolved Solids	6,380	9-05-89	19:05	160.1	JZ
Chloride	13	9-15-89	11:19	325.3	AFB
Sulfates	4,500	9-12-89	19:30	405.1	JS

All results reported in mg/L unless otherwise noted

baw/dupont

Approved by

Adrienne Byrnes

Manager of Analytical Chemistry Section



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ENGINEERING, INC.**

ENVIRONMENTAL CONSULTING AND TESTING
AIR & WATER POLLUTION-SOLID WASTES SAMPLING - ANALYSIS - CONSULTING

Telephone (219) 464-2389 FAX: 219-462-2953

2400 Cumberland Drive
Valparaiso, Indiana 46383

LABORATORY REPORT

CLIENT E. I. Dupont DeNemours & Company DATE October 26, 1989
ATTENTION Mr. John Urban PHONE (219) 391-4619
ADDRESS 5215 Kennedy Avenue, East Chicago, IN DATE OF SAMPLE RECEIPT
SAMPLE COLLECTED BY Northern Labs & Engineering October 5, 1989 (5476)

RESULTS

PARAMETER	10-03-89 <u>Outfall 003</u>	DATE OF ANALYSIS	TIME OF ANALYSIS	METHOD	INITIALS OF ANALYST
COD	16	10-20-89	10:00	410.2	RS
Ammonia-Nitrogen	<0.1	10-09-89	22:01	350.2	LA
BOD	<2.0	10-05-89	14:00	405.1	RS
Total Suspended Solids	44	10-05-89	12:00	160.2	RS
Total Dissolved Solids	8,330	10-09-89	15:00	160.1	RS
Chloride	25	10-10-89	14:51	325.3	AFB
Sulfates	6,440	10-13-89	14:32	405.1	AFB

All results reported in mg/L unless otherwise noted

baw/dupont

Approved by

Adrienne Byrnes

Manager of Analytical Chemistry Section

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF INDIANA

UNITED STATES OF AMERICA,

Plaintiff,

v.

E. I. du PONT de NEMOURS AND COMPANY,

Defendant.

Civil No. 71 H 53

DECREE

The Complaint having been filed herein on February 19, 1971, and plaintiff and defendant by their respective attorneys having consented, before the taking of any testimony and without trial or adjudication of any issue of fact or law herein, to the entry of this Decree, and without this Decree constituting evidence or admission by any party with respect to any issue of fact or law herein:

NOW, THEREFORE, upon the Complaint and without adjudication of any issue of fact or law herein, and upon consent of the parties hereto, it is Ordered, Adjudged and Decreed as follows:

I

This Court has jurisdiction of the subject matter herein and of the parties consenting hereto. The Complaint states a claim against the defendant under Section 13 of the Rivers and Harbors Act of 1899 (33 U.S.C. §407).

II

As used in this Decree:

(A) "Administrator" shall mean the Administrator of the Environmental Protection Agency (or the top administrator or executive of that Agency's successor agency or department), or his authorized representative.

(B) "Chlorides" shall mean the chloride ion as determined by (1) Method 112(A), page 96, Standard Methods for the Examination of Water and Wastewater, 13th Edition, 1971, American Public Health Association, New York, New York 10019 (hereinafter "Standard Methods"), or (2) any other method agreed upon by the parties in writing.

(C) "Company" shall mean E. I. du Pont de Nemours and Company.

(D) "Conductivity" shall mean specific conductance as determined by (1) Method 154, page 323, Standard Methods, or (2) any other method agreed upon by the parties in writing.

(E) "Daily loading" of a given material shall mean the total quantity of that material, expressed in pounds per day, discharged from the Premises through outfalls or entering the Premises through intakes during that day.

(F) "Day" shall mean a 24-hour period commencing at 10 A.M.

(G) "Discharge" shall mean any flow of liquid matter or any deposit of solid matter from the Premises directly or indirectly into navigable waters of the United States or tributaries of such waters, except for flow through a municipal sewer system of sanitary wastes or steam-boiler blowdown, unless the Company can demonstrate that such flow resulted from war, riot, sabotage, act of God or other cause beyond the reasonable control and without the fault of the Company.

(H) "Dissolved Solids" shall mean total filterable residue as determined by (1) Method 148 B (using a glass fiber filter disc and drying at 180°C.), page 290, Standard Methods, (2) the determination of conductivity after statistical correlations have been established with 95 percent confidence between the determinations made by the above method and conductivity, or (3) any other method agreed upon by the parties in writing.

(I) "Intake" shall mean either all water and water-borne materials pumped into the Premises from a municipal system or the Grand Calumet River, or, if sense requires, the location at which the Company receives water from a municipal system or pumps water from the River.

(J) "Month" shall mean calendar month commencing at 10 A.M. on the first day thereof and ending at 10 A.M. on the first day of the following month.

(K) "Monthly average" shall mean the arithmetic average of the results of sampling or testing for at least ten days during a calendar month, unless the results of sampling or testing for more than ten days during a calendar month are available, in which case the arithmetic average of the greater number of days shall be used.

(L) "Net daily loading" of a given material shall mean the difference, expressed in pounds per day, between the total quantity of that material discharged from the Premises through outfalls during that day and the total quantity of that material entering the Premises at intakes during that day.

(M) "96 hour median tolerance limit for aquatic life" shall mean that concentration of a toxic substance in which 50% of the test fish survive for 96 hours, as determined by (1) Method 231, page 562, Standard Methods, or (2) any other method agreed upon by the parties in writing.

(N) "Non-contact cooling water" shall mean all water for cooling purposes which is carried onto or flows into the Premises and which does not come into direct contact with process materials in said cooling operation.

(O) "Outfall" shall mean any structure, pipe, or ditch, carrying a discharge, at the point where the discharge carried therein enters a navigable water of the United States or a tributary thereof.

(P) "pH" shall mean the logarithm of the reciprocal of the hydrogen ion activity in moles per liter as determined by (1) Method 144 A, page 276, Standard Methods, or (2) any other method agreed upon by the parties in writing.

(Q) "Phosphorus" shall mean total phosphorus as determined by (1) Method 223 C III, page 526, and Method 223 E, page 530, Standard Methods, or (2) any other method agreed upon by the parties in writing.

(R) "Premises" shall mean the plant operated by the Company in East Chicago, Indiana, consisting of the land, buildings, and equipment.

(S) "Settleable Solids" shall mean settleable matter as determined by (1) Method 224 F, page 539, Standard Methods, or (2) any other method agreed upon by the parties in writing.

(T) "Sulfates" shall mean total sulfate as sulfate ion as determined by (1) Method 156 A (corrected for interfering substances when present), page 331, Standard Methods, (2) Method 156 C (corrected for interfering substances when present), page 334, Standard Methods, or (3) any other method agreed upon by the parties in writing.

(U) "Suspended Solids" shall mean total suspended matter (nonfilterable residue) as determined by (1) Method 224 C (drying at 180°C.), page 537, Standard Methods, or (2) any other method agreed upon by the parties in writing.

(V) "Week" shall mean a seven-day period commencing Monday.

(W) "Zinc" shall mean that element as determined by (1) Method 129 A, page 211, Standard Methods, (2) Method 211 (III) B, page 448, Standard Methods, or (3) any other method agreed upon by the parties in writing.

III

The provisions of this Decree shall apply to and be binding upon the Company, its officers, directors, agents, servants, employees, successors and assigns, and all persons, firms and corporations acting under, through or for it; in

addition, the provisions of this Decree shall apply to all persons, firms and corporations having actual notice of such order by personal service or otherwise who are in active concert or privity with the Company, its officers, directors, agents, servants, employees, successors or assigns, or all persons, firms and corporations acting under, through or for it.

IV

The Company is ordered to take the following actions at the Premises representing the maximum treatment and monitoring currently technologically and economically feasible:

a. The Company is ordered to diligently pursue and to complete by not later than September 15, 1973 the construction of facilities necessary to consolidate all discharges of other than non-contact cooling water into two outfalls (designated as outfalls 002 and 003 on the attached drawing) and to consolidate the discharges of non-contact cooling water from the sulfuric-acid manufacturing plant (which is approximately 91% of all non-contact cooling water) into a third outfall (designated as outfall 001 on the attached drawing); none of these outfalls shall be located upstream from an intake.

b. After September 15, 1973, the Company shall be and is hereby enjoined from making or permitting any discharges of other than non-contact cooling water from any points or outfalls other than outfalls 002 and 003, and shall be and is hereby enjoined from making or permitting any

discharges of non-contact cooling water (other than that which is not from the sulfuric-acid manufacturing plant, which may be discharged through outfalls 002 and 003) from any points or outfalls other than outfall 001, unless otherwise authorized by the Administrator prior to the Company's making or permitting said discharges.

c. The outfalls discussed in Sections a. and b. of this paragraph are structures in navigable waters, construction of which requires a permit from the United States Army Corps of Engineers. Accordingly, the Company is hereby ordered to make complete application by December 1, 1972 to the Corps of Engineers for a permit to construct such outfalls. If, for reasons beyond the reasonable control and without the fault of the Company, such permit is not granted by April 1, 1973, the dates in Sections a., b., d. and f. of this paragraph upon which the Company is to comply or begin to comply with orders of this Court, shall be extended to 165 days (5 1/2 months) after a permit is granted in the case of Sections a. and b., 285 days (9 1/2 months) after a permit is granted in the case of Section d., and 225 days (7 1/2 months) after a permit is granted in the case of Section f.

d. Commencing January 15, 1974, the Company shall be and hereby is enjoined from making or permitting any of the following:

(1) discharges which during any one-hour period have an average pH below 6.5 or above 9.0;

(2) discharges having a net daily loading above 12 pounds or a monthly average net daily loading above 8 pounds of zinc;

(3) discharges having a net daily loading above 6 pounds or a monthly average net daily loading above 4 pounds of phosphorus;

(4) discharges having a net daily loading above 900 pounds or a monthly average net daily loading above 600 pounds of total suspended solids;

(5) discharges having a net daily loading above 4800 pounds or a monthly average net daily loading above 2500 pounds of chlorides;

(6) discharges of cooling water additives or heavy metals in concentrations so as to exceed one tenth of the 96 hour median tolerance limit for aquatic life normally found in Lake Michigan.

e. Commencing October 15, 1974, the Company shall be and hereby is enjoined from making or permitting any of the following:

(1) discharges having a net daily loading above 58,500 pounds or a monthly average net daily loading above 39,000 pounds of sulfates;

(2) discharges having a net daily loading above 102,000 pounds or a monthly average net daily loading above 74,000 pounds of dissolved solids.

f. Commencing November 15, 1973, and not later than the 15th of each month thereafter, the Company shall submit to the Administrator the following information as to its process water discharge in the immediately preceding month:

(1) for each day of the month, the average flow, the high and low one-hour average pH value, and the high and low one-hour conductivity value for all discharges from outfalls 002 and 003 at the Premises based on continuous monitoring;

(2) for each day of the month, the average daily flow of water at the intake and of water obtained from municipal and other sources;

(3) for each of ten days of the month, or for each day of the month, the average daily loadings at outfalls 002 and 003 for suspended solids, dissolved solids, sulfates, chlorides, phosphorus and zinc; and

(4) for each of the days of the month reported pursuant to subsection (3), the average daily loadings at the intake and of water obtained from municipal and other sources for suspended solids, dissolved solids, sulfates, chlorides, phosphorus and zinc.

g. Each sample taken to fulfill the reporting requirement in section f. of this paragraph shall be a 24-hour flow-proportioned composite consisting of a minimum of one portion per hour. If the report is based on ten samples, a minimum of two samples per week shall be taken at random intervals, as determined by the Administrator using standard statistical random number tables. All analyses shall be made for particular substances as specified in paragraph II of this Decree. Regarding the water obtained from municipal sources, the Company may report data obtained from the municipality in question or from grab samples taken on each of the days of the month reported pursuant to subsection f(3) of this paragraph.

The Company shall employ sampling and monitoring techniques at the Premises of sufficient reliability to provide satisfactory operation during at least 90 percent of the sampling and recording period.

The Company shall provide the Administrator with an analysis of cooling water additives used at the Premises and the average weekly amounts used. When new additives are used, the Company shall notify the Administrator, providing an analysis of their content and average weekly amounts used.

The report submitted to the Administrator shall be certified by a qualified chemist, biologist, sanitary engineer or licensed professional engineer as having been prepared under circumstances, which, in the opinion of the person so certifying would produce a representative sampling of the process water.

V

The parties recognize that the technology necessary for treating chlorides, sulfates and other dissolved solids at the Premises may be significantly improved in the near future. Accordingly, the Company is ordered to pursue diligently a technologically and economically practicable means of achieving a maximum reduction of its discharges of these wastes. The Company is further ordered to submit a plan to the Administrator by no later than October 15, 1974 for the abatement of its discharges of these wastes in accordance with the best practicable control technology that is available at that time. The report shall state the

minimum discharge levels of these wastes (in terms of net concentration, net daily loading and monthly average net daily loading) that can be achieved at full production with the best practicable control technology available for the Premises and, in addition, shall include a schedule for such abatement with a completion date no later than December 31, 1976.

The Administrator shall have 60 days within which to act upon this report. If the Administrator approves the Company's estimates of the minimum discharge levels that can be achieved with the best practicable control technology, then those estimates will become the Company's discharge requirements for the specified wastes, to become effective December 31, 1976. If the Administrator rejects the Company's estimates, the Company shall have 30 days in which to submit modified estimates or additional data to the Administrator, and the Administrator shall thereafter have 30 days to act upon the additional submissions. If the Administrator again rejects the Company's estimates, either party may, within 10 days, petition this Court for a hearing. At such hearing the sole issue before the Court shall be the discharge requirements to become effective December 31, 1976 for the specified wastes, and the standard for determining those requirements shall be the best practicable control technology available.

VI

The Company agrees that it is responsible for removal from the Grand Calumet River of all the settled solids discharged by the Company that have accumulated adjacent to the Premises

within 25 feet of the north bank between the west river-water intake dock and a point 150 feet downstream therefrom. The Company is hereby ordered to make complete application by November 15, 1972 to the United States Army Corps of Engineers for a permit to dredge such settled solids and the Company is hereby ordered to remove such settled solids from the River within 60 days (two months) from the date that a permit to dredge such settled solids is granted by the Corps of Engineers. Thereafter, should settled solids originated and discharged by the Company accumulate in the Grand Calumet River adjacent to the Premises within 25 feet of the north bank between the west river-water intake dock and a point 150 feet downstream therefrom, the Company shall be and is hereby ordered to seek appropriate dredging permits periodically as necessary and, upon receipt of such permits, to remove such solids from the River.

VII

This Decree is not and shall not be interpreted to be a permit for discharge of pollutants under Section 402 of the Federal Water Pollution Control Act as amended in 1972, nor shall it in any way affect the Company's obligation, if any, to secure a permit under the above-mentioned Section 402 for these Premises, nor shall it be interpreted, in any way, to affect or waive any of the conditions or requirements that may be validly imposed as conditions for the issuance of such permit. However, the conditions of any such permit for

discharges from the Premises shall not be inconsistent with the requirements of this Decree.

VIII

This Decree and the jurisdiction of this Court over this matter shall terminate two years after the effective date of the discharge requirements set forth in paragraph V of this Decree on the condition that there is in effect at that time a valid permit or permits as required by Federal law for all discharges from the Premises.

IX

This Decree shall in no way relieve the Company of its obligation to comply with any other local, state or federal law in any way related to the substance of this Decree.

X

For the purpose of insuring compliance with this Decree, duly authorized representatives of the Water Quality Office of the Environmental Protection Agency, the Corps of Engineers, or the Department of Justice shall be permitted access to the Premises for the purpose of inspecting, monitoring and sampling the discharge therefrom of any waste effluent, provided the visits contemplated herein shall be at reasonable times and within reasonable limits and shall follow the presentation of appropriate credentials to the Company's agent or employee in charge of the Premises at the time of the visit.

XI


The Court finds that the extent of the damage to the ecology of the Grand Calumet River, the Indiana Harbor Canal, Lake Michigan, and the national policy of environmental restoration that might be caused by a violation of any provision of this Decree cannot be ascertained with any degree of certainty or definiteness. Therefore, if any violation occurs, the United States, if it chooses not to proceed under Section 401 of Title 18, United States Code, may collect from the Company liquidated damages of \$5000 for each violation; the United States may not collect liquidated damages with respect to any violation which is the subject of a proceeding under 18 U.S.C. §401. A violation will be deemed to have occurred for failure to comply with the specific effluent requirements of the Decree or any deadlines specified in the Decree.

XII

While jurisdiction is retained by this Court, either of the parties to this Decree may apply to this Court at any time for any such further orders and directions as may be necessary or appropriate.

DATED: Hammond, Indiana

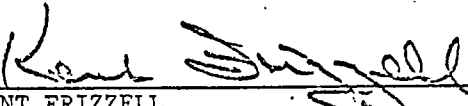
~~October~~ November 14, 1972



United States District Judge

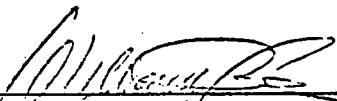
APPROVED AND CONSENTED TO:

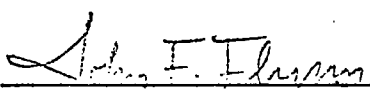
UNITED STATES OF AMERICA, Plaintiff

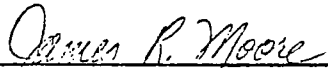
BY:


KENT FRIZZELL
Assistant Attorney General
Department of Justice


WALTER KIECHEL, JR.
Deputy Assistant Attorney General
Department of Justice

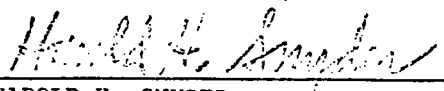

WILLIAM C. LEE
United States Attorney
Northern District of Indiana

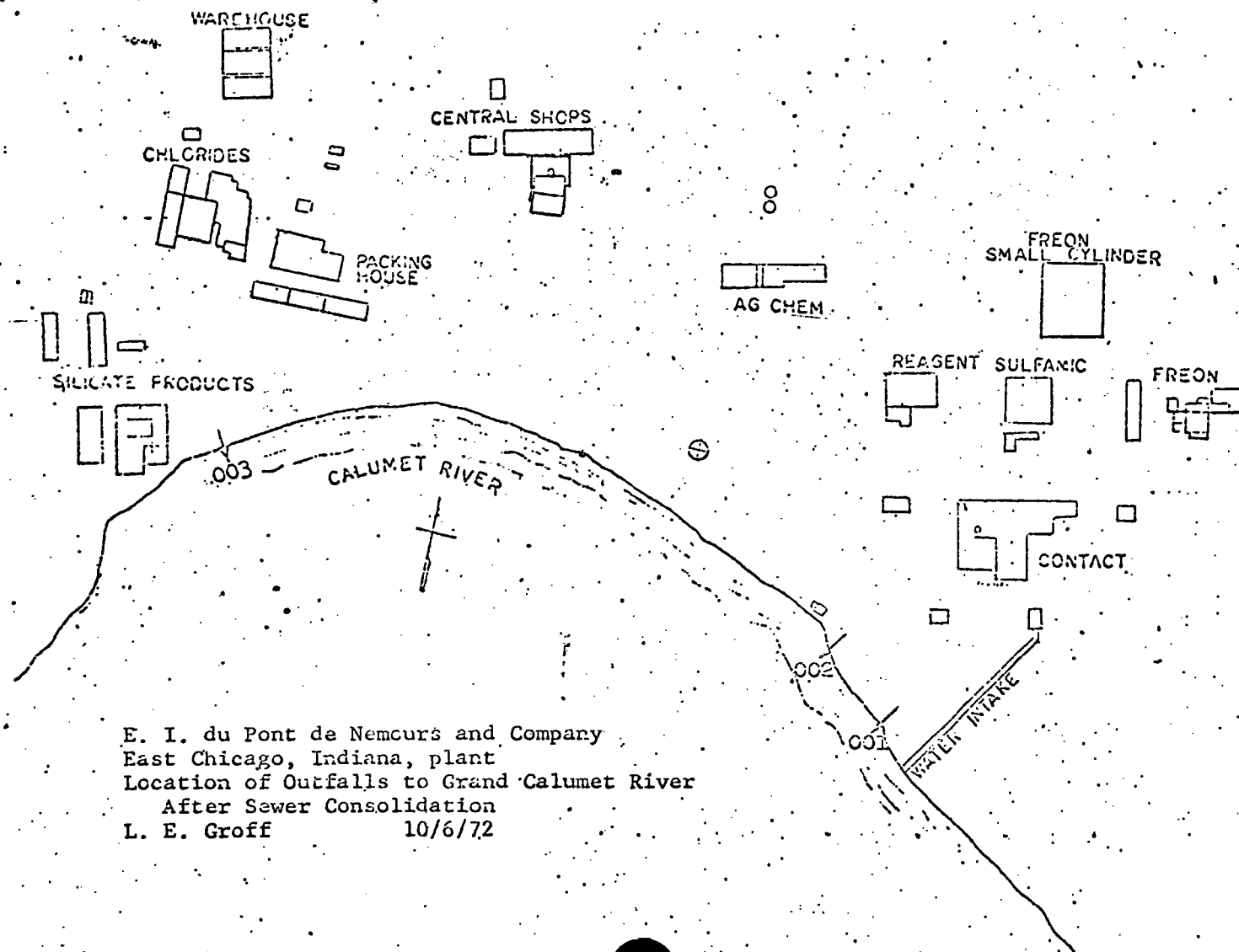

JOHN F. FLYNN
Assistant United States Attorney
Northern District of Indiana


JAMES R. MOORE
Attorney
Department of Justice
Washington, D.C. 20530

E. I. DU PONT DE NEMOURS AND COMPANY, Defendant

BY:


HAROLD H. SNYDER
Vice President and General Manager,
Industrial Chemicals Department



E. I. du Pont de Nemours and Company
 East Chicago, Indiana, plant
 Location of Outfalls to Grand Calumet River
 After Sewer Consolidation
 L. E. Groff 10/6/72